AMERICAN BEE JOURNAL

NOVEMBER, 1915

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American Bee Journal

AMERICAN BEE JOURNAL

ESTABLISHED IN 1861 — OLDEST BEE PAPER IN AMERICA

PUBLISHED MONTHLY BY
American Bee Journal
1st Nat'l Bank Bldg. Hamilton, Illinois

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Woodman's double-wall Protection Hives, single-wall hives, Good enough Brand Sections, shipping cases, foundation, and all supplies Send us a list of the goods wanted and let us figure on your 1916 requirements.

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To buy both Comb and Extracted honey. Write us what you have to offer, naming your best prices delivered. Every time an interesting price is named us, we buy and remit the day shipment arrives.

SHIP US YOUR OLD COMB

We render it into wax, and pay the market prices.

THE FRED W. MUTH COMPANY

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Prices of one and over	1	6	12
Virgins	$ .50	$2 75	$ 5 00
Untested	.85	4.50	8.00
Select untested	1.00	5.00	9.00
Warranted	1 10	5.50	9.50
Tested	1 50	7 50	13.50
Select tested	1.75	9.00	15.00
Tested breeding	3.00		
Select tested breeding	5.00		
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1 frame nuclei without queen.....$1.50
2 frame nuclei without queen..... 2.75
3 frame nuclei without queen..... 3.50
Colony 8-frame hive without queen..... 7.50
Colony 10-frame Danz, without queen... 9.50
Colony 10-frame hive without queen..... 9.50

When queens are wanted with nuclei and colonies, add queens at prices as above for queens.

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½-pound package, wire cage.....$1.00
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All bees and queens shipped from our yards at Penn, Miss. We have no disease, nor do we know of any diseased bees in this State, Our queens are bred from highly selected stock of uniformly marked bees; for gentleness and working qualities they are unsurpassed; they are world-beaters as honey-gatherers. We consider these queens the equal of any on the market, and years of favorable reports substantiate this claim. In ordering you have the choice of selecting three-banders or goldens. Prompt attention given to all orders and inquiries. Read The A. I. Root Company's endorsement below.

MEDINA, OHIO, February 6, 1914.
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THE A. I. ROOT COMPANY,
Per E. R. Root, Vice-president.

Our record last year, about 10,000 queens, and shipments to all important foreign countries; every State in United States and Canada, and only two complaints, which we readily made good. Try us. We are sure to please you.
Our QUEENS all around the world. The sun never sets on a Penn Co.'s queen.

THE PENN COMPANY, Penn, Lowndes County, Mississippi

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American Bee Journal

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Entitled, "BEEKEEPING" by

DR. E. F. PHILLIPS, In Charge of Bee Investigations at the Department at Washington, D. C.

This book of nearly 500 pages, with many illustrations, is unique in that it aims to get at the underlying causes of most of the perplexing subjects in Beekeeping. Special chapters on Wintering, Swarm Control, and Bee Diseases are especially interesting.

A scientific authority, yet, Dr. Phillips discusses these subjects in a way that makes the most interesting reading.

The book, which is attractively cloth bound, sells regularly at $2.00—postage extra.

By special arrangement we can offer it, postpaid, with the American Bee Journal one year for $2.50, or with Langstroth Revised for $2.75. Address,

AMERICAN BEE JOURNAL
Hamilton, Illinois

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Campbell's Scientific Farmer is a high-class magazine devoted exclusively to scientific agriculture. It is the only authority published on dry farming—scientific soil culture. No farmer west of the Missouri river should be without this magazine or Campbell's manual of soil culture which is the agricultural bible of the dry farmer, a guide and a comfort in time of trouble. Subscription price of the Scientific Farmer—$1.00 per year. Send for a sample copy and ask about the manual.

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Best prices you will get for your honey when put up in our sections and shipping cases. "LOTZ" sections and shipping cases have stood the test. Why? Because they are perfect in workmanship, quality and material. Buy LOTZ goods when you want the BEST. Our 1915 catalog ready now. Send your name and get one.

H. S. DUBY & SON, St. Anne, Ill., carry a full line of our goods.

AUG. LOTZ CO. BOYD, WIS.

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—By putting—

EAT HONEY

Stickers on all letters, packages, shipments, etc. Printed in bright red, already gummed. Ice, postpaid, 500, 20c; 1000, 30c.

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buys a Standard Typewriter your choice. Late Style Visibles Back Spacer, Tabulator. Two-color Ribbon. Every modern operating convenience. My prices lower than other cash prices. Perfect Machines. Fully guaranteed. Ask for Special. Five Days Free Trial Offer. **H. A. SMITH**
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ALLEN'S FOOT-EASE DOES IT

When your shoes pinch or your corns and bunions ache so that you are tired all over, get Allen's Foot-Ease, the standard remedy for the last 25 years, and shake it into your shoes. It will take the sting out of corns and bunions and give instant relief to tired Aching, Swollen, Tender feet. Sold every, where, 25 cents. *Don't accept any substitute.*

American Bee Journal

What- going to pass up a 5 percent cash November Discount?

Many beekeepers do not prepare for the unusual honey-flows that come in some sections after they have almost given up hopes of getting any surplus honey, and are, therefore, caught off guard. A few dollars put into supplies at this time of the year will put you in shape to take advantage of the early flows, and as you need more supplies subsequent orders can be placed. The 5 percent discount will almost pay the freight and give a running start over those who neglect to put in their supplies this fall.

The quality of workmanship and material is unsurpassed. Some of your neighboring beekeepers will be glad to show you some of the goods they have purchased of us.

Red Catalog, postpaid - "Simplified Beekeeping," postpaid

DEALERS EVERYWHERE

W. T. Falconer Mfg. Co., Falconer, New York

Where the good bee-hives come from

The CANADIAN HORTICULTURIST AND BEEKEEPER

The only bee publication in Canada

It is the official organ of the Ontario Beekeepers' Association, and has incorporated with it the former Canadian Bee Journal.
Beekeeping and Horticulture in its various branches are effectively combined to form a live, attractive, and practical monthly magazine.
Well illustrated and up-to-date. Subscription price postpaid.
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No. 25 screw cap jars, 1-lb., $4.60 gross. Shipping cases, cartons and cans. Amber honey, 7½ cts. a lb. Light amber 8½ cts. a lb. on two 60-lb. can lots. Catalog of supplies free. I. J. STRINGHAM,
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Read what J. I. Parent of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc. to make with this saw. It will do all you say of it." Catalog & price-list free

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Send in your subscription to **The Leghorn Journal** and keep posted on the progress of the Leghorn industry; as it is devoted exclusively to the different Leghorn fowls. Subscription price 50c per year. Special offer—Send us 10c and the names of five of your neighbors interested in Leghorns, and we will send you The Leghorn Journal for three months.

THE LEGHORN JOURNAL
Appomattox, Virginia

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ARTISTS
ENGRAVERS-ELECTROTYPERS
542-550 S. DEARBORN ST.
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HONEY AND QUEENS

$16.00 Gets 32 gallon barrel of Chinquapin honey.
$20.00 Gets same amount either poplar or black tupelo gum honey.
$19.20 Gets carriers of eight 24 lb. cases; fancy, 12½ oz., and better light amber comb honey.
$18.00 Gets same amount and quality, 11 ounce sections.
$16.50 Same amount, 10 ounces, lighter weight, 10c per pound.
$ 5.00 Tested grey Caucasian queens; best stock $1.50 each.

J. J. WILDER, Cordele, Georgia

SHIPPING CASES

We have them and sell at the old price. Send us a list of what you want or send for catalog of the best and cheapest bee supplies of all kinds.

H. S. DUBY & SON, St. Anne, Ill.

TEXAS QUEENS

Circular free

Italians, the pure three-banded stock from imported mothers. Carniolans, the pure dark grey stock from Carniola. Queens will be ready to ship early in March. No disease. Prices, 75 cents each. $8.00 per dozen.

Grant Anderson, Riohondo, Texas

Attractive Prices
ON TIN HONEY CONTAINERS

Just now there is a heavy demand for tin honey containers in Illinois and adjoining territory. A heavy fall honey flow is on. If you need cans or pails write us. We have secured cans at such figures that we can surely save you money.

Write us your ***requirements*** and we will give you our best prices

DADANT & SONS
Hamilton, Illinois

BEE-KEEPER'S NOVELTY POCKET-KNIFE

Your Name and Address will be put on one side of the handle as shown in the cut, and on the other side a picture of a Queen-Bee, a Worker-Bee, and a Drone-Bee. The handle is celluloid, and transparent, through which is seen your name. If you lose this Knife it can be returned to you, or it serves to identify you if you happen to be injured fatally, or rendered unconscious. The cut is the exact size. We have succeeded in getting this knife made in lots from genuine car-van steel. It is especially well tempered and keeps its edge remarkably. When ordering be sure to write exact name and address. Knife delivered within two weeks after we receive order.

Price, postpaid, $1.00; or with a year's subscription to the American Bee Journal—both for $1.80; or given FREE as a premium for sending us 3 New subscriptions at $1.00 each.

American Bee Journal, Hamilton, Illinois.

TENNESSEE-BRED QUEENS

43 Years' Experience in Queen Rearing—Breed 3-Band Italians Only

	Nov 1 to May 1			May 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12	1	6	12
Untested.....	$1.50	$7.50	$13.50	$1.25	$ 6.50	$11.50	$1.00	$ 5.00	$ 9.00	$ .75	$ 4.00	$ .75
Select Untested	2.00	8.50	15.00	1.50	7.50	13.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested.....	2.50	13.50	25.00	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8 00	15.00
Select Tested..	3.00	16 50	30.00	2.75	15.00	27.00	2.50	13.50	25.00	2.00	10.00	18.00

Bees by the pound, 1 lb., $1.25; 2 lb., $2.25; 3 lb., $2.75.
Nuclei (no queen) 1 fr. $1.50; 2 fr., $2.15; 3 fr. $2.75; 4 fr., $3.50; pure 3-band Italians.
Select queen wanted, add price.

Capacity of yard, 5000 queens a year—Select queen tested for breeding, $5.00
The very best queen tested for breeding, $10

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

JOHN M. DAVIS, SPRING HILL, TENN.

HONEY AND BEESWAX

DENVER, Oct. 18.—The first of the new crop of comb honey is now coming in and sells locally at the following prices per case of 24 sections: Fancy, $3.60; No. 1, $3.38, and No. 2, $3.15. Crop promises to be light. Local prices on extracted unchanged. White, 8½@8¾c; light amber, 8@8¼c; amber, 7@8c. We pay 25c cash and 27c per pound in trade for clean yellow beeswax delivered here.

THE COLO. HONEY-PRODUCERS' ASS'N.
Frank Rauchfuss, *Mgr.*

CINCINNATI, Oct. 2.—The demand for honey is increasing, which is the general rule for this time of the year. Comb honey is selling fast at $3.75 to $4.00 per case for fancy white. Amber comb honey is not wanted in this market at any price. For choice white clover extracted honey we are getting from 7@9c a pound; for amber extracted in barrels from 4@7c, according to the quality and quantity purchased. We are paying 28c a pound delivered here for choice bright yellow beeswax. THE FRED W. MUTH CO.

NEW YORK, Oct. 18.—The new crop of comb honey is rather slow in arriving; still there is not a very heavy demand as yet, probably due to the intense hot weather of late. Prices are ruling at from 15@16c per pound for fancy white; 13@14c per pound for No. 1; 10@12c per pound for off grades. The market on extracted is quiet and inactive; there seems to be an abundant supply of clover and linden as well as California sage and alfalfa. West Indian honey is arriving right along with prices showing a downward tendency.

Beeswax is coming in steadily at from 30@31c per pound.

HILDRETH & SEGELKEN.

LOS ANGELES, Oct. 19.—Strictly water white sage honey is scarce, one car having recently sold at 6c net to the producers. Light amber sage has been sold on a basis of 3½@3¾c; light amber alfalfa, on a basis of 3⅜@3½c. All net to producer, f. o. b. common shipping points. Beeswax is worth about 24@25c. HAMILTON & MENDERSON.

KANSAS CITY Mo., Oct. 16.—Our market is well supplied with both comb and extracted honey. We quote as follows: No. 1 white comb honey, 24 section cases, $3.25 to $3.35; No. 2, $2.75 to $3.00. No. 1 amber, 3.00 to $3.25; No. 2, $2.50 to $2.75. White extracted, per pound, 7½@8c. Amber, 5½@7c. Beeswax, No. 1, 28c, No. 2, 25c. per pound.

C. C. CLEMONS PRODUCE COMPANY.

CHICAGO, Oct. 18.—Arrivals of honey are quite free, and stocks are accumulating in the absence of a free outlet. Prices on the best grades of white comb honey are ranging from 16@17c per pound with amber grades at 13@14c per pound. Mixed colors are difficult to class at anywhere from 10@12c per pound. Extracted honey is dull with prices ranging from 7c@9c per pound. Ambers from 5@6c per pound. Beeswax at 28@30c per pound. R. A. BURNETT & CO.

INDIANAPOLIS, Oct. 20.—The demand for honey has been very brisk of late, especially extracted; however, we have been unable to get a supply of comb to meet the demand. At this writing, No. 1 choice white is selling at $3.50 to $4.00 per case. Extracted of best quality in 60-pound cans, in small lots, 9½@11c per pound. We are paying 28c cash for beeswax, 30c in trade. W. S. POUDER.

Statement of Ownership, Management Circulation, Etc.,

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[Signed] M. G. DADANT, *Manager.*

Sworn to and subscribed before me this 21st day of September, 1915.

[SEAL.] R. R. WALLACE.

Notary Public.

My Commission expires Sept. 21, 1917.

MORE MONEY FOR YOUR HONEY

WHEN PACKED IN

LEWIS SUPERB SHIPPING CASES

After you have harvested a nice lot of comb honey do not make a serious mistake by putting it up ready for the market in a cheap appearing case such as a home-made one or that turned out by a local planing mill. The best and most economical (taking the sale of the honey into consideration) case must be turned out with the same careful workmanship and with the same selection of proper material as goes into the making of first-class bee hives and honey sections such as we manufacture.

It is an acknowledged fact that comb honey put up in attractive Lewis Shipping Cases will bring from one to two cents per pound more than the same honey put up in poor cases. Do not cheapen your product by inferior cases. You can afford the best—remember your shipping cases are the show windows for your goods. Your honey will bring more money if well displayed.

INSIST ON THE LEWIS MAKE

Lewis Shipping Cases are cut accurately out of clear, sound basswood lumber. All of these cases are neatly packed, and include the proper size nails for nailing them up.

For sale by us and the following Lewis distributers:

CALIFORNIA	W. A. Trickey	Bishop
COLORADO	Colorado Honey Producers' Association	Denver
COLORADO	Grand Junction Fruit Growers' Association	Grand Junction
COLORADO	Delta County Fruit Growers' Association	Delta
COLORADO	Producers' Association	De Beque
COLORADO	A. S. Parson	Rocky Ford
COLORADO	Coffin & Foster	Rifle
COLORADO	J. Roscoe Miller	Montrose
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G. B. LEWIS COMPANY

Sole Manufacturers

Watertown, - Wisconsin

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C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

HAMILTON, ILL., NOVEMBER, 1915 **Vol. LV..—No. 11**

EDITORIAL COMMENTS

Our Front Cover

On our front cover we give one of Frank C. Pellett's photographs of his wild garden. The young lady in the photograph is Miss Mildred Neff, a younger sister of Mrs. Pellett.

Aster Honey

It is our impression that the main reason why aster honey is bad food for winter is that it is harvested so late that much of it remains unsealed and becomes watery during moist winter weather. Will others take notice of this and give their experience?

A number of beekeepers have given a favorable report on wintering bees with aster honey, in Gleanings in Bee Culture for Aug. 15.

Beekeeping—A New Book

This is the title of a work of 457 pages by Dr. E. F. Phillips, the Apiarist of the Department of Agriculture, who has been in charge at Washington, D. C., for a number of years, and whose studies of bee diseases, queen-rearing and colony wintering have already rendered great service to American apiculture.

This book occupies a special place in the beekeeper's library, for it is neither an arduous scientific work unintelligible to the average man nor a solely practical treatise. Dr. Phillips handles apiarian questions in his own way, says nothing positively of which he cannot furnish proof, but gives his readers some very decided information on the most important subjects. The book is interesting and captivates the attention. Here are a few of our impressions gathered in pencil notes while reading it.

In the opening chapter, "Beekeeping as an Occupation," the author shows that there is at present no likelihood of overproduction of honey. The value of the United States honey crop is about $20,000,000, or about 20 cents worth of honey per inhabitant. On the question of who should keep bees, he suggests that those enthusiasts who love out-of-doors and intimacy with these insects will make a success, and that those who have no liking for the pursuit should never consider it.

His experience on the fertility of queens is in line with that of other practical men. He says that a prolific queen may lay as many as 4500 to 5000 eggs in 24 hours. He very clearly supports the idea of independent personal odor of hives, bees and queens, which has been denied of late by critics, but which is strongly sustained by most experienced apiarists.

In the matter of apiary supplies, Phillips deprecates investment in complicated implements. With our most successful apiary workers he holds that the hives and all supplies should be strongly built, simple in construction, uniform and interchangeable. We certainly commend such advice which is exactly in line with our own practice.

The book contains a very interesting description of the embryonic and larval development of the bee, as also of the structure of the perfect insect. The statement is made that the early flight of the young bee, a week after birth, is necessary to void the feces. This statement strengthens our view that young bees which have never yet left the hive are undesirable as escort for a queen on a protracted journey.

The opposite views of Schiemenz and Schoenfeld on the origin of the pap or royal jelly are mentioned by him without the expression of personal opinion, neither side having as yet made positive proof of the correctness of its statements. Schiemenz, sustained by Cheshire, asserts that the larval food is a product of the salivary glands, while Schoenfeld, sustained by Cowan, gives it as a product of the second stomach or ventriculus, from which the jelly is regurgitated. The fact that Phillips does not take side with either scientist, one of whom must be right, shows that he does not wish to support anything without proof.

Regarding the organs of smell, Phillips sustains the recent studies of McIndoo, in which the assertion is made that these organs are not located in the antennæ but in "olfactory pores" on the bases of the wings, on the legs and on the stings. As we have given a description of the McIndoo studies, pages 197-200, June, 1914, we will add nothing to this subject. But the support of Phillips will strengthen the McIndoo assertion in the minds of many beekeepers.

Dr. Phillips believes in evolution, and in a note at the foot of page 82 criticises the egotistical belief that the honeybee, as well as the rest of the universe, was made solely for the benefit of man. He says:

"Not until one realizes that every species of plant and animal is in a struggle for its own existence, without

American Bee Journal

regard for the welfare of any other species, can one get a correct conception of the facts of Nature. The honeybee was evolved from less specialized insects because the changes fitted it better to its environment; they store honey because the instinct to do so fits them better for their environment. The fact that man can take some of this honey should not cause him to think that all this course of evolution is for his benefit."

In regard to the location of apiaries the author suggests that the selection should be made so that the colonies may store the maximum profitable surplus, and this depends upon location. The number of colonies to be kept in each apiary should depend upon this factor and also upon the number which the apiarist may be able to manipulate in a single day. In connection with this subject, a map of the Dadant apiaries, published in Gleanings in Bee Culture in 1891, is given. A reproduction of our present system of apiaries has been suggested to us in this connection, and will probably be published in the Bee Journal before long.

On this subject of honey extracting, Dr. Phillips mentions the advantage derived from saving the combs, and states that it is estimated that beeswax costs from 6 to 20 pounds of honey for each pound of comb secreted. This has been a much debated subject, some old school apiarists holding that in some cases a pound of comb costs less than two pounds of honey.

On wintering, which is one of the subjects most studied by Phillips, the statement is made that, during cold weather, any disturbance which excites the bees causes brood-rearing, and that this should be avoided as long as there is to be no opportunity for the young bees to take a flight. The Langstroth frame is considered by him as rather shallow for best results out-of-doors. A double story, with ample stores in the upper portion, is recommended. The annual consumption of honey by a colony, for their support, is estimated at 200 to 600 pounds. He quotes Hommel, a French experimenter, as giving an average of 480 pounds for the needs of a colony in a season.

A very full list of the principal honey plants is given. The foulbrood chapter is thorough. Phillips is an authority on this subject, since he has helped Dr. White in studying the disease. The treatment he advises is popularly known as the "shaking treatment," and is recommended by him for both American and European foulbrood, with the additional advice, in the latter disease, to change the queen for a young, vigorous Italian queen. The removal of the old queen and keeping the colony queenless for a few days, is mentioned as often sufficient, in treating European foulbrood.

Several queen-rearing methods are given with insistence upon the necessity of rearing queens from choice stock of pure race, owing to the variability of crosses.

We find only one subject for criticism, and it is a matter of opinion in connection with the Dzierzon theory of parthenogenesis. As the discussion of this subject will require a statement of past experiences, we will give it a special mention in a future number. Some comments by Dr. Miller will also be given.

FIG. 1.—AFTER THE FLOOD AT THE LOUIS WERNER APIARY

Impoverished by Flood

One of our well-known Illinois beekeepers, Mr. Louis Werner, has been impoverished by the floods of the past summer. The accompanying engravings show the extent of the loss. Figure 1 represents the home. The water was 6½ feet deep in it on Aug. 21. The torn down building next to it was his summer kitchen. The apiary of 75 colonies was almost entirely destroyed. The honey house shown in Fig. 3 contained 650 pounds of comb honey and 400 pounds of extracted honey. This was lost as well as about 400 pounds still on the hives and 23 nuclei for queen-rearing. The water came so fast, he says, that they had no warning of the danger. The barn, shown in Fig. 2, was moved, as shown, upon the railroad track, and had to be torn down to be removed. The cut shows carpenters in the act of taking off the roof.

Of the entire apiary only four or five hives were saved with a few bees in them. But they were queenless. The traps and implements saved from the flood are shown to the right of the house, in Fig. 1. All his bee-supplies are gone. The 400 pounds of extracted honey was in a tank, and this was tipped over when the honey house was

FIG. 2.—LOUIS WERNER'S BARN MOVED UP ON THE RAILROAD TRACK BY THE FLOOD

moved by the water 100 feet. The depth of the water is shown on the house by the upper slat nailed across the window.

Mr. Werner is aged and a cripple, and we believe deserves relief at the hands of his brother beekeepers. The American Bee Journal proposes to start it with a subscription of $20. All sums remitted will be acknowledged in these columns. In these times of strife and war, we ought to help the unlucky friends.

The Hamilton-Keokuk Meeting

Press of work prevented us from commenting in the October number upon the discussions that took place at the above-mentioned meeting.

The paper read by Dr. Pammel, State Botanist of Iowa, at Keokuk, will be

American Bee Journal

FIG. 3.—ANOTHER VIEW OF THE FLOOD DAMAGE

found in this issue. This paper was supplemented by an interesting demonstration of honey plants. The Misses Mitchell, of Keokuk, had brought to the meeting an armful of flowers, among which the following were named and exhibited:

Bidens aristosa (tickseed, Spanish needles), *Polygonum pennsylvanicum* (smartweed), *P. hydropiper*, *P. persicaria* (lady's thumb, knotweed, heartsease), *P. orientale*, *Solidago* (goldenrod), iron weed (*Veronia*), boneset (*Eupatorium*), mint, asters, catnip, Simpson honey plant (*Scrophularia*), all good honey yielders, and a number of other flowers of indifferent utility or good only for pollen. The entire collection had been gathered from the hills and valleys in the neighborhood of Keokuk.

On the questions of diseases it was the unanimous verdict of the inspectors present that the 30 States, more or less, which now have inspection laws, should unite under the direction of the Department of Agriculture, in order to have uniform and concerted action for the protection of apiaries.

The influence of queens upon European foulbrood was discussed and Mr. France suggested that queen-breeders should make entirely sure of the absence of that disease from their apiaries, and that a clean bill of health should be withheld for a year from queen-rearing apiaries where any disease was found.

More About European Foulbrood

The theory that nurse bees feed to larvæ the juices of other larvæ that are diseased is only a theory. I think it is true, *but I don't know*. I do know, however, that in cases of starvation, or at any time when a larva is mashed, the bees suck the larval juices, and it doesn't seem so very hard to believe they may do the same thing with a diseased larva before the disease has made said juices at all putrid.

I don't know that European foulbrood is not communicated by the queen. I do know that I have caged the queen in a diseased colony something like 10 days, and in the great majority of cases the disease was cured. Surely in such cases the queen did not convey the disease.

Objection is made that cutting out queen-cells will have evil results in the character of the bees. I have followed the practice nigh half a century, and my bees are more vigorous than ever. That doesn't appear as if cutting cells was so very bad.

Twenty-four days queenlessness with certain feeding is given as effecting a cure. But why that if 10 days queenlessness without any feeding will answer?

I believe this: that a mild case of European foulbrood—and I do not believe that a watchful beekeeper need ever let a case go beyond the mild stage—allowing the case to be in a strong colony, will be cured nine times out of ten by the mere caging of the queen for 10 days. C. C. M.

The reader will find three articles on this subject in the present number. Until our scientists can give us some positive explanation of how the disease is carried it is well to let our practicing beekeepers tell how they succeed in overcoming it. The apiary mentioned by M. G. Dadant in the April number as having had 51 colonies suffering from European foulbrood in 1914, had the disease again in 1915, but nevertheless furnished a crop of honey amounting to 11,000 pounds besides an increase by division of 12 colonies on a spring count of 79. C. P. D.

The Scarifying of Sweet Clover Seed

Since it has been discovered that the difficulty of germinating of sweet clover seed, owing to its hard coat, may be overcome by scarification, we have found that a similar trouble exists with the sulla (*Hedysarum coronarium*), so useful as a honey plant in Italy. In a private letter, Mr. Bertrand, the former editor of "Revue Internationale," tells us that the coating of the seed of sulla is so hard that much of it does not germinate before a year. In view of this, a planter of Algeria tried immersing the seed for five minutes in boiling water and obtained great success. Mr. Bertrand tried the method himself and "practically all the seed germinated within five or six days."

In lieu of the method of scarification, some of our best instructors in the growing of sweet clover advise soaking the seed in sulphuric acid for 20 minutes. As not every farmer has sulphuric acid readily at hand, and as this drug is quite dangerous to handle, those who are unable to secure scarified seed might try the boiling process.

If we were living in superstitious times, it would perhaps be asserted that these plants were originated in Inferno, since their seed withstands boiling.

The process of scarification we are told is in vogue in southern Italy for the seed of sulla. But they call it "decortication."

Price of Honey in Germany

According to the July number of "Die Bienenpflege," a pound glass of honey is readily sold anywhere in Germany for 35 cents.

Cooking Recipes

We must commend Gleanings in Bee Culture for Oct. 1, a special magazine number on the use of honey in cooking. It is unusally interesting and is offered in single copies at 5 cents each, or 30 cents for 10. Our compliments to Editor Root and his brother Huber.

Phillips and Demuth on Wintering

Bulletin No. 93 of the Bureau of Entomology, which gave the experiments on the "Temperature of the Cluster in Winter," made by the two officials above named, was published in 1914, and commented upon in our Journal, on page 188 of June of that year. They now follow it up with another bulletin, "Outdoor Wintering of Bees," No. 695 of the Department of Agriculture, to be had from the Department in the usual way.

American Bee Journal

This is a sequel to the experiments, with conclusions as to the requirements. Plenty of stores, thorough and early packing and the avoiding of disturbances which would arouse the colony to activity are the main requisites. The packing method which leaves the front of the hive exposed for the benefit of the sun's rays in winter is deprecated. Windbreaks of evergreens are suggested as the best.

The bulletin holds that the winter loss which now averages about 10 percent in the United States may be reduced to less than 1 percent. Practical beekeepers will do well to consult this bulletin. It is the result of a great deal of study and careful experiments which cannot be conducted by the average apiarist.

Death of Henri Fabre

The world-renowned French entomologist, J. H. Fabre, mentioned in the American Bee Journal at several times during the past two years, died at his home in southern France, Monday, Oct. 11, aged over 92 years. He is the author of a 10-volume work entitled "Souvenirs Entomologiques."

A Manual of Bee Husbandry

This is the title of a pamphlet of 72 pages, with numerous illustrations published by Elmer G. Carr, Deputy State Entomologist in Bee Inspection of the State of New Jersey. The book is well printed and contains the State foulbrood law and useful information concerning modern methods of beekeeping.

MISCELLANEOUS NEWS ITEMS

The Ohio Meeting.—The Ohio beekeepers have arranged their next convention on the circuit plan with several of the other States. Dr. Phillips, Mr. Root, and several other strong men will be on the program. The meeting will be held in Akron, Nov. 26 and 27. Besides the regular program, visits will be arranged for the Quaker Oats Factory, Rubber Factories, and the O. C. Barber farm, noted for its fine Guernsey cattle, bees, alfalfa, etc. It contains 3500 acres.

Address all communications to me at Ithaca, N. Y., Dept. of Entomology, Cornell University. E. R. KING, *Sec.*

Fair Premiums in Arizona.—The apiary department at the Arizona State Fair this year offered $164 in cash premiums for exhibits of honey and beeswax. Mr. M. E. Shrum was the efficient superintendent in charge of the department.

Bee Courses at Cornell and Berkeley.—Cornell University at Ithaca, N. Y., is this year offering instruction in beekeeping. The course will be given during the second semester of the school year. Mr. E. R. King, of Ohio, secretary of the Ohio Beekeepers' Association, will be in charge.

The University at Berkeley, Calif., also announce a course during the second semester of the school year. Two periods a week will be devoted to lectures and a like amount to laboratory and outside work.

Ontario Beekeepers' Association Convention for 1915.—The annual convention of the Ontario Beekeepers' Association will be held in the York County Council Chambers, 75 Adelaide St., East, Toronto, on Tuesday, Wednesday and Thursday, Nov. 23, 24 and 25.

The Executive Committee have drafted a very attractive program that is sure to prove interesting and instructive.

The principal outside speaker will be Dr. E. F. Phillips, in charge of Bee Culture Investigations, United States Department of Agriculture, Washington, D. C. Dr. Phillips has been investigating wintering conditions of the colony, and at the opening session Tuesday afternoon, will speak on "Temperature and Humidity in the Hive in Winter." In the evening he will give an illustrated lecture, "Some Beekeepers of the United States." Being an extensive traveler and a keen observer, he is sure to have a valuable store of information for this occasion.

On Wednesday morning Mr. H. G. Sibbald, a large honey producer of Ontario, will deal with "Outdoor Wintering," and Mr. Morley Pettit, Provincial Apiarist, will give a summary of the year's work.

The varying seasons of the past three years have introduced new features into bee management. Swarm control and summer protection has been practiced by Mr. F. W. Krouse, and he will relate his experiences. For the beginner, as well as the experienced beekeeper, a discussion on honey production, both comb and extracted, will be interesting.

An exhibit of apiary appliances will be a special feature of the convention. These handy tools and jigs are the inventions of practical beekeepers and greatly assist both for speed and accuracy many of the small operations and manipulations about the apiary. Time will be allotted during the last session on Thursday afternoon for an address on "Modern Apiary Equipment and Buildings," by Mr. Wm. Elliott, of Adelaide, Ont. Mr. L. Caesar, of the Department of Entomology, Ontario Agricultural College, Guelph, will discuss "Poison Sprays and their Relation to Bees."

Programs will be sent to members of the association as soon as final arrangements have been completed.

For further details address the secretary-treasurer, Morley Pettit, O. A. College, Guelph, Ont.

Bee Dysentery.—That the above disease is frequently indirectly caused by insufficient protection of bees during winter is the conclusion reached by Farmers' Bulletin No. 695, issued at

FIG. 1.—VIEW OF APIARIAN EXHIBIT AT CANADIAN NATIONAL EXPOSITION

American Bee Journal

FIG. 2.—ANOTHER VIEW OF THE EXHIBIT AT THE CANADIAN NATIONAL EXPOSITION

Washington, D. C., and distributed free to all who request it.

Adequate insulation and plenty of good stores are given as the two prime factors in successful wintering. "The beekeeper should aim to save his bees rather than his stores, and should provide good food for his colonies as lavishly as insulation for his hives."

The above recommendations are excellent. We advise every one to get a copy of this bulletin.

Bee Meetings Fall in Succession.—According to the pre-arranged schedule announced in our July issue, most of the bee meetings of the middle States have been so arranged that they fall in succession. This will give an opportunity for some of the beekeepers to attend several meetings at a very nominal cost. Following is a list to date of the meetings as they will occur:

1. Ontario, Toronto, Nov. 23, 24, 25.
2. Ohio, Akron, Nov. 26, 27.
3. Illinois, Springfield, Nov. 29, 30.
4. Kansas, Topeka, Dec. 1, 2.
5. Missouri, Dec. 3, 4.
6. Minnesota, University Farm, St. Paul, Dec. 7, 8.
7. Wisconsin, Madison, Dec. 9, 10.
8. Indiana, Indianapolis State House, Dec. 10, 11.
9. Iowa, Des Moines, Dec. 13, 14, 15.
10. Michigan, Grand Rapids, Dec. 15, 16.
11. Chicago-Northwestern, Chicago, Dec. 17, 18.

Illinois Annual Meeting.—The annual meeting of the Illinois State Association will be held at Springfield, Nov. 29 and 30. Owing to the severe illness with typhoid of Secretary Stone, the program has been delayed. However, a good program has been arranged, and as Illinois is on the circuit with the other meetings, several beekeepers of national prominence will attend.

Serious Illness from Bee Stings.—We have recently passed through an experience unlike anything which I have ever seen in all my beekeeping. Wednesday evening Mrs. Pellett was writing and went into the next room in the dark to get some stationary. While she had her hands in the drawer a bee stung her on the neck. We had not been working with the bees during the day and had no idea that they were in the house.

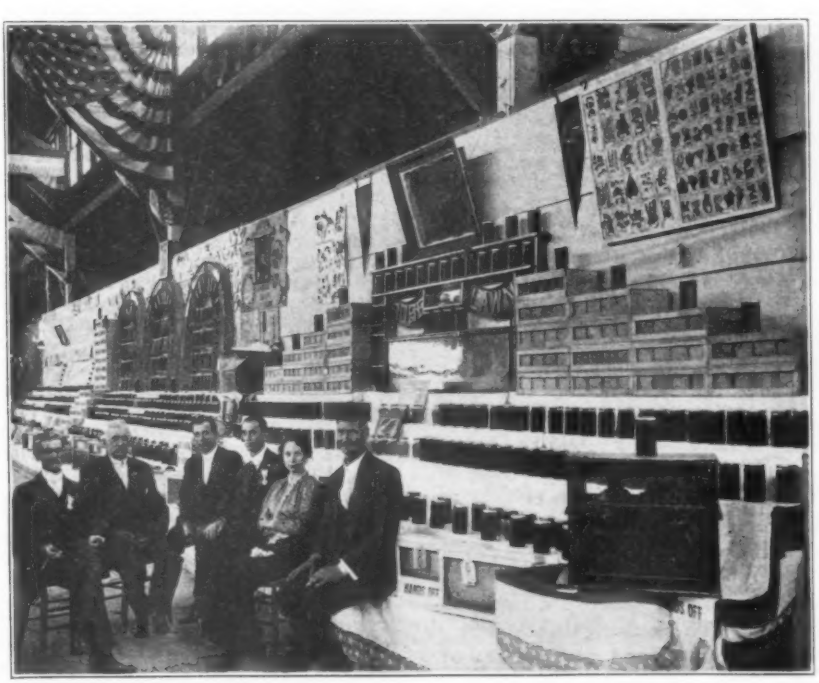
Within a few minutes her lungs began to fill up like one with pneumonia, and in less than half an hour she seemed to be in a very serious condition. She was gasping for breath and her heart was beating so hard that I could plainly hear it. We tried to telephone the doctor, but he was between his office and his home, and we could not reach him immediately. I think I never saw any one sicker than she was for perhaps 30 minutes. After a time she broke out badly, and the action of the heart became less violent. Within an hour she was sitting up again, and although she still felt very badly her condition seemed no longer serious, and she could smile faintly at her experience.

I have had so many stings myself, with no apparent ill effects aside from the slight discomfort, that I had come to think of a beesting as a slight matter. I have heard of serious consequences from stings. In fact, there is a man in Atlantic, whose father died under similar circumstances from a sting in the temple. This experience brought forcibly to mind that under certain circumstances a sting is a very serious thing. Now, after two days, Mrs. Pellett is quite herself again, but I would not go through that half hour again with the very apparent danger for a small fortune. Evidently the sting was very near a vital spot.

I am wondering whether you ever knew of such a case. I am sure I never did, and I hope never to repeat the experience. FRANK C. PELLETT.

Atlantic, Iowa, Oct. 1.

Since the above was written, Mr. Pellett reports that his wife was since stung on the foot without any serious results. It looks as if, in the above



APIARIAN EXHIBIT AT THE KANSAS STATE FAIR, 1915

American Bee Journal

mentioned case, the poison had reached an artery or a vein, so as to get into the circulation instantaneously. Luckily such instances are rare.

Iowa State Beekeepers' Convention.—The fourth annual convention of the Iowa State Beekeepers' Association will be held at Des Moines, Dec. 13, 14, and 15. Following is the program:

MONDAY, DEC. 13.

10:00 A.M.—Welcome and Response.
Address of President, C. E. Bartholomew, of Ames.
Report of Secretary-Treasurer—S. W. Snyder, Center Point.
Appointment of Committees.
2:00 P.M.—"The Advantages of Beekeepers' Associations to the Industry"—C. P. Dadant, Editor American Bee Journal.
"The Advantages of Cooperative Honey Exchanges for the Marketing of Honey"—P. J. Doll, Manager Tri-State Honey Exchange.
Answers to Questions.
7:30 P.M.—Lecture on "Beekeeping"—(illustrated)—E. R. Root, Editor of Gleanings in Bee Culture.

TUESDAY, DEC. 14.

9:00 A.M.—"Outdoor Wintering"—Dr. E. F. Phillips, Department of Agriculture, Washington, D. C.
"Something"—Dr. A. F. Bonney, Buck Grove
"Queen Rearing"—Prof. Francis Jager, University of Minnesota.
2:00 P. M—"Bee Diseases in Iowa in 1915"—Frank C. Pellett, State Bee Inspector.
Answers to Questions.
7:30 P.M.—Lecture on "Ecology of Honey Plants"—(illustrated)—Dr. L. H. Pammel, Iowa State College.

WEDNESDAY, DEC. 15.

9:00 A.M.—"Pollenization of Economic Plants"—L. A. Kenoyer, Iowa State College.
"Honey Vinegar"—C. E. Bartholomew, Iowa State College.
2:00 P.M.—Reports of Committees.
Election of Officers.
Adjournment.

NOTE.—The time not filled by the above papers will be taken up by the answering of many questions by shorter papers. These "Questions" will be assigned to members who will be given time to prepare their answers and thus fully cover the subject.

Propagating Basswoods.—I have obtained some basswood seed from the timber and intend to grow the same. I understand that it is rather difficult to get the seed to grow. Please give the benefit of any experience and knowledge you may have available on this subject. J. F. COYLE.

Penfield, Ill

Although I have never planted basswood seed myself, I was informed long ago that, like a number of other seeds, it is slow in germinating. A writer in one of the bee papers, some 30 years ago, gave the information that it did not usually germinate until the second year. It should be kept in the ground so as to let it dry as little as possible. Perhaps a scarifying such as is in use for sweet clover seed would have a beneficial effect.

A number of people have recommended growing basswood trees from cuttings. The cuttings should be of straight, young wood and about 6 or 8 inches long, the lower end being cut about an inch below a good bud. By keeping the cutting in warm earth in a hot-bed, it is said it will make roots readily, like grapevines or willows, provided it be kept moist enough.

Our method of growing basswoods has been to take sprouts from the forest where basswood trees have been either cut down or grubbed. Those sprouts usually have rootlets in sufficient number to keep the tree alive after it has been separated from the main root upon which it grew.

Canadian National Exhibition.—The exhibit of the Apicultural Department of the Ontario Agricultural College at the Canadian National Exhibition occupied one table and part of another, the rest of the end of the building being taken up by the other departments of the college. The exhibit consisted of a model of an apiary constructed of hives built to scale 3 inch to the foot. These were arranged in order as they would be in the regular apiary, the table being covered with green burlap to represent sod, and the hives interspersed with small palms and ferns to represent trees and shrubbery (Fig. 1). There was also a model of a quadruple hive winter case also built to a scale, and several small implements used in beekeeping, including the gearing of a new friction drive power honey extractor (Fig. 2).

The feature of the exhibit which attracted the most attention, however, was a tall observation hive containing five Langstroth combs, one above the other, covered with bees, also a single comb observation hive and a pound package of bees (Fig. 1). An attendant was constantly in charge of this exhibit during the two weeks of the exhibition, and was kept busy most of the time answering questions about bees and honey.

This Canadian National Exhibition is an annual affair, which has been conducted for a great many years. In 1913, there was a total attendance during the two weeks of about 1,000,000 people. Owing to war conditions, however, the attendance this year was a few hundred thousand less than that, although it was more than last year. As the entertainment features of the exhibit are very small comparatively, and are confined to the midway which is placed off in one corner of the grounds, the educational value of this exhibition on the whole is very great.

Guelph, Canada. MORLEY PETTIT.

Kootenay Beekeepers' Association.—The first annual meeting of the Kootenay Beekeepers' Association was held at the City Hall, Nelson, on Friday, Sept. 24, 1915, the last day of the Nelson Fruit Fair, at which there was a representative attendance of members from Nelson and the surrounding districts. The report is as follows:

"The association, organized in September, 1914, is the first beekeepers' association to be formed in British Columbia. Seventy-eight members have been enrolled. Unfortunately the past season has not been a good one for honey production in this section of Province. Exceptionally fine and warm weather prevailed during March and April, when the bees went ahead and promised well, but the following three months, May, June and July, were excessively wet and cold, consequently the clover, on which we mainly depend for our surplus honey crop, yielded but very little nectar. The honey that has been taken is much darker in color than usual. In many instances colonies were actually starving in June, and would have succumbed had they not been fed with sugar syrup.

"The honey label adopted by the association for the use of the members, to promote uniformity in putting up honey for sale, has met with general approval, and 3825 have been sold to date."

The balance sheet, showing an excess of assets over liabilities of $43.35 was approved and passed.

The following officers were elected for the year ending Sept. 30, 1916:

Hon. President, W. E. Scott, Deputy Minister of Agriculture, Victoria; President, Major-General Lord Aylmer, Queens Bay. Vice-Presidents, G. E. Parham, Superintendent, Dominion Experimental Farm, Invermore; G. Fleming, Nelson. Executive Committee, J. J. Campbell, Willow Point; Mrs. Casler, J. Hyslop, C. G. Johnson, W. H. Hixon, W. J. Mohr, of Nelson; J. Blinco, Creston; B. Lockwood, Fruitvale; E. Alpaugh, Kaslo; R. E. Plowman, Roseland; J. H. Vestrup, Nakusp; N. W. Collins, Grand Forks; H. G. Slater, Westley; T. S. Gill, Cranbrook; G. F. Attree, Queens Bay; James Johnstone, W. Romain, Nelson; A. E. Watts, Wattsburg. Hon. Secretary-Treasurer, W. J. Sheppard, Nelson. Hon. Auditor, Hixon, Nelson.

Michigan's 50th Annual Meeting.—On Dec. 15 and 16, the Michigan State Beekeepers' Association will hold their 50th annual meeting at Grand Rapids.

This meeting promises to be one that will set a new record in interest and attendance, and one that will be remembered by those present as the best ever.

One of the special features will be a banquet supper on the evening of the 15th. This banquet is the gift of Messrs. G. B. Lewis, of Watertown, Wis., and A. G. Woodman, of Grand Rapids, Mich. A banquet at which all the members get together seems to add a finishing touch to any gathering, and we feel sure the beekeepers will show Messrs. Lewis and Woodman their appreciation by turning out in record numbers.

The program will be brimful of good things, and many of the notables of the beekeeping world will be there. Full particulars of the program will be published next month.

The headquarters of the association will be the Eagle Hotel. This hotel has been our headquarters on many previous occasions, and is well known to the beemen. Rooms range from 75 cents up.

Many beekeepers do not attend meetings of this kind because they fail to realize their full value. The program alone will repay the trouble of attending, but this is only a part. The beekeeper who wants to learn more about

American Bee Journal

disposing of his crop of honey is usually able to obtain this information in personal discussions with the other beekeepers present. Send us in your questions any time and we will endeavor to answer them in a satisfactory manner at the meeting.

Every beekeeper in Michigan is invited to attend, and is expected to bring along another beekeeper to join with us in making the 50th annual meeting of the Michigan Beekeepers' Association bigger'n ever.

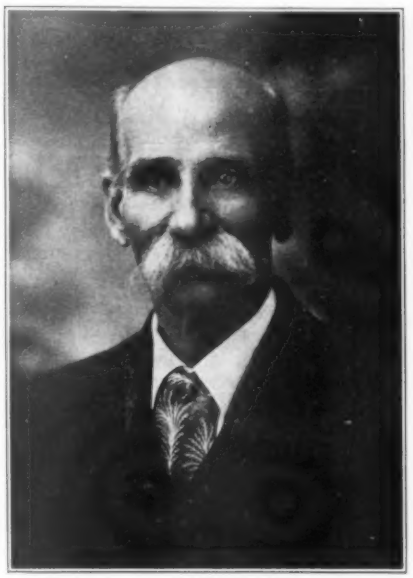
F. ERIC MILLEN, *Sec.-Treas.*
East Lansing, Mich.

Honey Shortage in England. — The prospects for "heather" honey in England this season are not bright. June frosts, which blighted the heather buds, was followed by a wet summer. The bees of the United States have produced a splendid quantity of honey this year, averaging 36.2 pounds per colony against 32.2 pounds last year. Over 50,000,000 pounds of honey are produced yearly, hence the English shortage can readily be supplied. This season's large yield, together with increased receipts of honey from the West Indies, has depressed prices. American honey exports were only $136,000 in value in the 12 months ended June 30, 1914, of which but $4000 went to England.

Exports of honey dropped to $114,000 during the months ended June 30, 1915, of which $54,000 went to England. Germany was formerly the largest purchaser of American honey, taking in the fiscal year 1912, $134,000 worth; in 1913, $107,000 worth; in 1914, $75,000 worth, and for the year just closed only only $10,000 worth.—*United States Consular Reports.*

five tons of honey. Many are doing the same and getting results equally satisfactory. Of course, I am waiting anxiously to see how these apiaries will show up next spring, for we may expect some return of the disease.

The enclosed photograph shows Mr. Korse at work in his honey-house during the busy season. The Korse Bros. have been successful in migratory beekeeping, wintering their bees in the valley orange groves and moving to the sage belt after extracting from the orange flow.



OSCAR DOWNS, OF ORANGE, CALIF.

CALIFORNIA BEE-KEEPING

Conducted by J. E. PLEASANTS, Orange, Calif.

The Season

The season just closed marks, on the whole, a slightly more encouraging condition among the beekeepers of the coast than prevailed last year. There was no more honey taken per colony than last year, and we have had a fair sized battle with European foulbrood. Prices, however, have been just a little better and more sales have been made.

But one lesson, I think, we have learned: That it is a mistake to hold honey over unless prices are extremely low. Early sales generally average best. It seems that the European war has demoralized our amber honey trade for the last two seasons. This has also borne down the price of white honey, as many will use the cheaper article regardless of quality. A surprising amount of ignorance still prevails among our home consumers and retail grocers regarding the different grades of honey. This also leads to careless methods of grading among beekeepers, the idea prevailing that people will pay as much for amber, especially for light amber, as for white.

European Foulbrood

Our beekeepers are making as strong a stand as possible against our new enemy (new here), European foulbrood. Almost to a man they are requeening and doing all that can be done.

For the encouragement of all who have this scourge to contend with, I will cite an instance of persistent effort on the part of a beekeeper, whose apiary I visited last week. Two years ago this disease appeared in the Santa Ana Canon apiary of Mr. Oscar Downs, the apiarist mentioned. He then had 300 colonies. The first year the disease showed but slightly. At the beginning of the present year, however, it broke out badly, and at least 150 of his colonies were diseased in the spring. He has worked among them valiantly, requeening and destroying all infected matter, and strengthening where necessary by uniting. He has now an apiary of 200 colonies of good, clean Italians.

When he and I looked them through we found but one colony slightly infected. He bought over 100 queens this season from one queen-breeder. This I consider a pretty good record of cleaning up an apiary, besides taking

Honey Grading

There is certainly a much needed "campaign of education" among the consumers and merchants as to the relative grades of honey and the prices

OLIVER KORSE AT THE CAPPINGS MELTER
The Korse Bros. apiary is in the Santa Ana Mountains

American Bee Journal

they should bring. Merchants should know and display the different grades of extracted honey as they now do comb honey, and should enlighten themselves as to the prices they should pay for the different grades.

It gives a beekeeper a mild shock to deliver an order of several cases of water-white honey to his local grocer, who has ordered the best, and have him question the price when asked only 6 cents, saying he can buy honey at 3½. This happened in our locality this season. The grocer had heard of amber honey selling at 3½ cents, and honey was honey to him—nothing more. And while he is an intelligent man, running a lucrative business, it took considerable explanation on the part of the beekeeper to convince him of the difference. This instance is cited merely to show the need of educating our market in order to keep prices, especially retail prices, anything like where they should be. And this, I suppose, fellow beekeepers, is up to us.

Our fancy grades of white honey are not bringing us what they should, even under present depressions, and partly, at least, because the consumer does not know the difference.

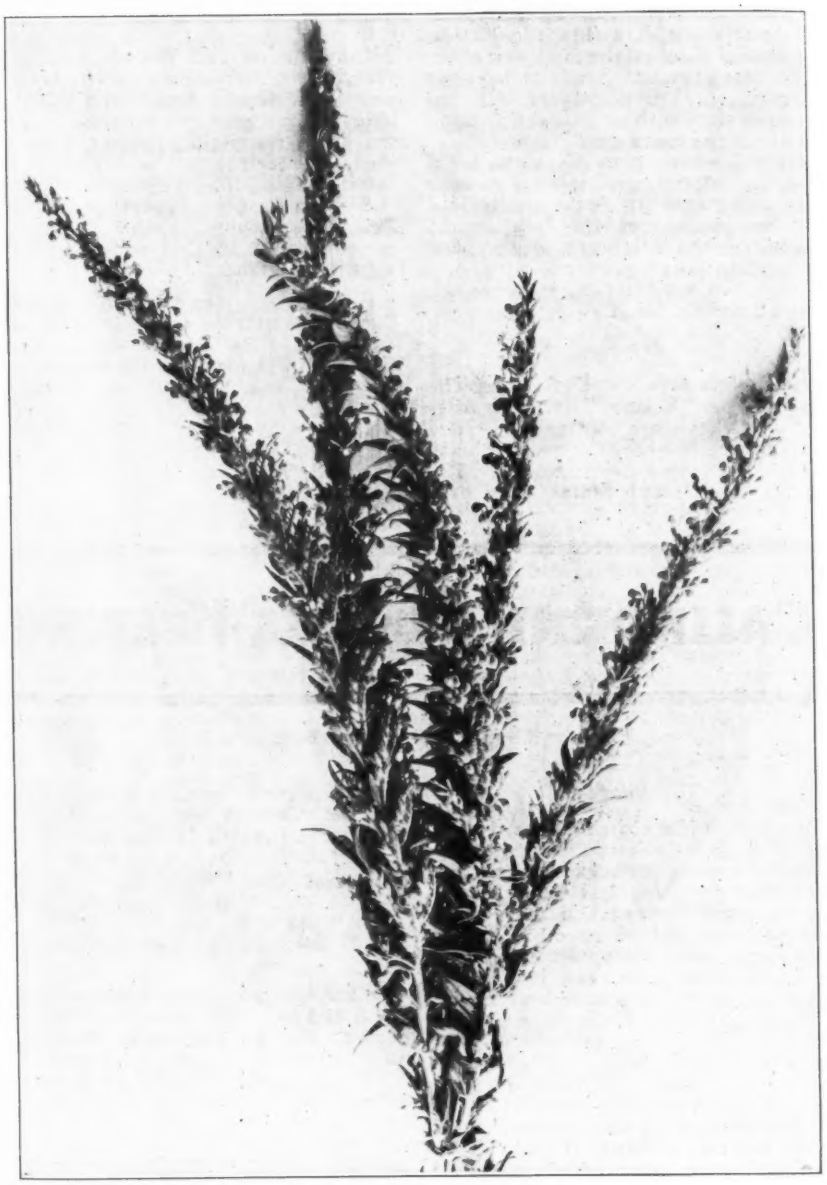
The National Association is doing its duty in this respect, and all other associations should be affiliated with it. A harmonious united effort is what we need. There is a movement afoot in southern California for something of this kind, the progress of which will be reported later.

California in the Fall

Our honey-plants both wild and cultivated, upon which we depend for surplus, are now enjoying their autumnal rest. They have come to their perfection with the season's rainfall or the provided irrigation flow, yielded their quota of nectar-laden blossoms, fruited, and the crops, useful to man, have been gathered. Even the thrice useful bean has been harvested and the straw baled and sold as roughage for the dairy cow.

The California landscape is now tawny and brown, relieved only by the green of the orange and eucalyptus groves and the dark purple of the distant mountains. The sages are unobtrusive masses of brown and gray, and are shrivelled to mere ghosts of their former selves by the heat of summer and the dry winds of autumn. The dry heads of the wild buckwheat are a rich chocolate-brown, persisting on the stem and almost as much prized for dry bouquets as the beautiful white immortelle which silvers the canons in spring.

But always there is something for encouragement, even for a bee. The dry stubble fields are now covered with the silver foliage and small white blossoms of the drouth-weed and the green and purple of the bluecurl. This last is sometimes called turpentine weed, on account of its strong scent. It is really a beautiful plant, seen either at close range or *en masse*, as it casts a soft purple haze over the fields. Like its sister bluecurl, the showy "Romeo," its stamens are also blue or purple and much exerted, or extended beyond the corolla tube and recurved—hence, the name bluecurl, commonly given to both species.



BLUECURL OR TURPENTINE WEED

From both the strong scented bluecurl and the drouth-weed, the bees gather considerable nectar. This is quite a help for winter stores. The bluecurl range is extending year by year over our stubble fields, encroaching on much of the drouth-weed's heretofore undisputed territory.

The creamy clusters of the fall-blooming eucalyptus are covered with bees to such an extent that their hum is almost like that of a swarm. There are also several species of wild composites which attract bees along the dry mountain streams at this season.

FAR WESTERN BEE-KEEPING

Conducted by WESLEY FOSTER, Boulder, Colo.

The European foulbrood situation is apparently affected more by locality and the seasons than is American foulbrood. Dr. Miller, you say that it is a waste of money to melt up combs affected with European foulbrood, and you are doubtless correct in your locality with your seasons, but any but the most stringent methods have met with practically an entire failure here

American Bee Journal

in Colorado. I have had a dozen apiaries under observation the past season, comprising nearly 400 colonies. Caging queens and requeening has not met with any success at all. The Italian queens bought by the beekeepers and coming through the mails do not seem to have the resistance that vigorous young queens reared at home do. No evidence has been presented to us that Italians are any more resistant than hybrids. One colony of near blacks has resisted the disease for two seasons and stored large crops of honey in an apiary that was practically wiped out by the disease. May it not be a characteristic of some colonies to refuse admittance to drifting or wandering bees?

One result of the introduction of new Italian stock was to demonstrate how thoroughly bees mix up in an apiary. It was but a very few days after young Italian bees began hatching until golden and yellow bees were seen going and coming at nearly all the hives in these apiaries.

The net result of the trial of caging queens has been to drive the beemen to a decision that requeening and a transfer is the best solution. The slogan to "keep all colonies strong" is good, but it cannot be done by uniting, with European foulbrood in the apiary; and, furthermore, it is not very practicable. A weak colony of bees affected with European foulbrood, requeened and transferred in a good honey flow, can "come back" to prosperity. Such colonies have done it time and time again. So much depends upon the season.

The district in which European foulbrood is present in Colorado is quite desirable from a honey-flow standpoint. Sweet clover is very thick, and considerable alfalfa is grown. If a weak colony can once get away from the disease and have a young queen, a very few days are required to fill the hive with comb, honey and brood. As several people said to me, "What is the use of wasting time trying to save the old diseased combs when the bees build new ones so fast?" The thorough clean up of European foulbrood pretty much on the same plan as for American foulbrood, has meant hundreds of dollars to some beekeepers in Colorado, and the advice that combs can be saved, and the disease cleaned out of colonies by cagiing the queens or requeening without transferring, has cost others hundreds of dollars.

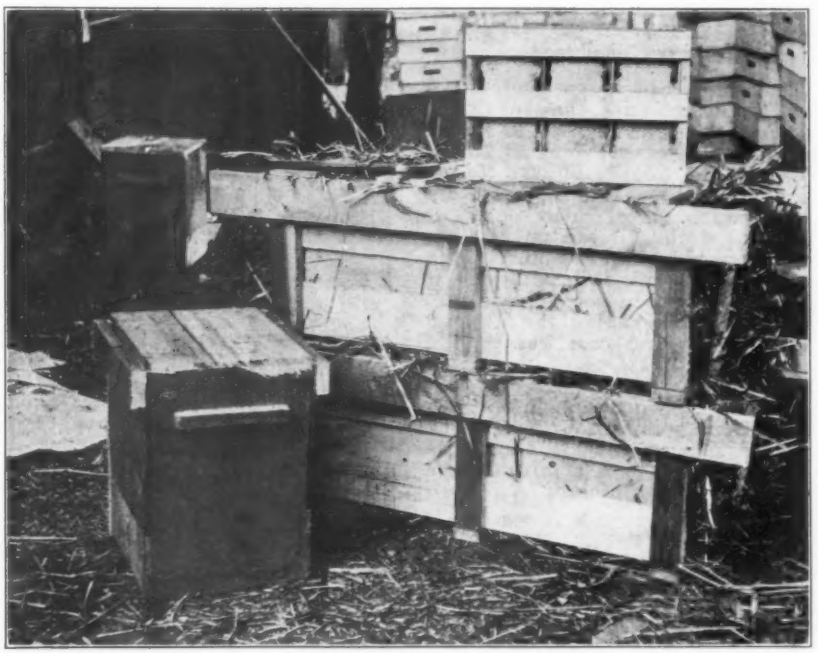
Dr. Phillips' recommendations on treatment of European foulbrood, as given in "Treatment of Bee Diseases," has been found to get results. The percentage of cures from transferring (with requeening) has been almost as high as for American foulbrood. We have no success whatever to report from caging queens. Some colonies where the queens were caged were very strong, and they made no honey, but did build up in *just fair* shape for winter. Similar colonies that were transferred made good yields of surplus honey and are in better shape for winter.

Arranging the hives in the apiary so there can be no drifting or intermingling of bees is very important. No kind of treatment will succeed with hives placed in close straight rows.

The review of the pamphlet of Oswald Muck, in the September American Bee Journal, deserves the careful attention of beekeepers. One thing is to be regretted in this review, and that is the author's description of "Boesartige" or American foulbrood His description of "Stinkende" or European foulbrood is so similar to our American foulbrood that it leaves a question in our minds whether his findings are of any value to us here. His description of "Sauerbrut" answers very well *some* of the characteristics of European foulbrood.

His statement that "Sauerbrut" will run into "Stinkende" brood is interesting, as we have seen no European foulbrood that approaches "Stinkende" except in this particular. In the district where European foulbrood flourishes American foulbrood has been present for years. The colonies that are affected with European foulbrood in the spring do not show much if any symptoms of American foulbrood because the brood is all or nearly all killed before it becomes old enough for American foulbrood to affect it. But as the European foulbrood begins to disappear in July, August and September, the American foulbrood begins to make its appearance. It is a very simple and clear proposition with us, and I am wondering if this may not be the case with Mr. Oswald Muck, when he says that "the lighter form is 'Sauerbrut,' which can readily turn into 'Stinkende' (European) foulbrood, and finally into American foulbrood."

It is rather strange to me that "Sauerbrut" is called the lighter form, for with us there is scarcely anything left to get a heavier case after this lighter form has had a free chance.



FOUR DOUBLE-TIER CASES OF COMB HONEY PACKED IN CARRIER CRATES WITH STRAW ON ALL SIDES WILL CARRY SAFELY BY FREIGHT IN COLD WEATHER

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

American Foulbrood at Marengo

July 21, in No. 98, a single cell of dead brood was found that looked as if it might be American foulbrood. A few days later no trace of it could be found, but some days later still a good many cells were present. Dr. Miller thought it American foulbrood, and that opinion was confirmed upon sending a sample to Washington.

It would appear that the disease does not travel very fast—at least it did, not do so in this case, for it had been within 12 miles of Marengo four or five years ago. The disease was found in another colony Aug. 11, and in three other colonies, Aug. 19, 20, and 28.

Diseased brood from other colonies was piled on No. 98, the first victim; the bees of 98 were destroyed by carbon disulfide, and the combs in the three stories burned in the furnace. Although carbon bisulfide is better than sulphur to destroy the eggs and larvæ of the waxmoth, it did not prove so good as sulphur for killing bees; its work being less speedy

American Bee Journal

and sure. But fire proved a sure disinfectant, destroying bacilli and spores promptly, while the frames and combs proved good furnace fuel.

As it was getting a bit late in the season, it was thought best not to give the same treatment to the other four colonies. They are to be left until they have no longer any unsealed brood. Then their frames are to be taken from them (not burned) and replaced by combs of sealed honey, and that's all the treatment they are to have. This is a form of treatment recommended by the late Mr. McEvoy. Although not advisable to use such a form of treatment in a case found early in the season, it seems to have its advantages in a case late in the season. The colony is not in the least weakened by having its combs exchanged, and should begin the following spring just the same as if no exchange had been made, whereas by the shaking plan the colony has a severe set-back in its work.

European Foulbrood

This year we had six cases of European foulbrood, not any of them very serious. June 22, Nos. 93 and 94 were found diseased; June 29, Nos. 4 and 26; July 1, No. 95; July 21, No. 96. It will be noted that four of them were in consecutive order, which looks just a little as if the disease might have been carried by bees entering the wrong hive by mistake; although it might not have been so. In each case the treatment was caging the queen 9 or 10 days. In no case was there a return of the disease.

No doubt it will appear again next year, if not from something in our own apiary, from bees of our neighbors. But when taken timely it does little harm. It would be a comfort if we could say the same thing of American foulbrood.

The Season at Dr. Miller's

In the August number of this journal, page 264, some account was given of the early part of the season at Marengo. As there stated, 260 supers were on the 92 colonies July 1. A pretty big allowance, but it must be remembered that an empty super was kept on top, as well as an empty super at the bottom; that is, an empty super was added at the bottom as often as the lower super was about half filled, and an empty super was kept on top all the time, to be used by the bees only if they were crowded into it. But we were not in great fear all the supers might not be needed if the weather were favorable, for the constant rain kept the clover growing, even if it didn't let the bees work. Indeed, we kept adding until July 21, an inventory showed 1 hive with 1 super, 1 with 2, 15 with 3, 33 with 4, 33 with 5, 5 with 6, 2 with 7, making 389 supers on 90 hives, or an average of about 4⅓ supers to each hive. The supers on 3 of the poorer colonies had been replaced with extracting combs, or rather brood-combs, for they were destined for feeding next spring rather than for extracting.

Rain, rain, rain, continued the rule, and in the last week of July the bees were kept indoors 4 successive days by the wet and cold. Fire was needed in the furnace a number of times when other years we would have been hunting a place in the shade. But with the hopefulness of beekeepers we kept looking forward for the bees to begin hard work again. For some reason the bees didn't begin, in spite of abundant bloom of clover and other plants, and by the last of August we gave up hope.

Just then, for some unexplainable reason, there began one of the heaviest flows we ever had. Editor E. R. Root, who was here Sept. 6 with Dr. E. F. Phillips, says of it in Gleanings in Bee Culture: "At the time of our visit there was such a roar of bees about his yard that it looked as if there was a big swarm in the air; in fact, several of them. Nay, rather it looked exactly like a wholesale case of robbing; but it was neither. An inspection of the apiary showed that large streams of bees were going into every one of his hives. We never saw such a furor of bees before in so small a yard—92 colonies, spring count."

Then Mr. Root set out to find out what the bees were working on, went through bush and briar, over or under barbed-wire fences, got lost, and having started west finally relieved the growing anxiety of his friends by making his appearance from the east. But he wasn't so very much wiser as to what the bees were working on. He found them on clover, heartsease, aster, and other plants, but not in apparently large numbers on any one plant. Perhaps their affections were somewhat evenly divided. It may be said in passing that bees never make a very big show on white clover, at least not here, even when white clover is doing its best. Possibly because there is no other plant so thoroughly distributed over the ground.

But the cold and wet again closed up business, and the last day of September saw all sections taken from the hives. At this date, Oct. 5, there has been no killing frost, clover and other bloom is still plenty, but honey plants do not seem to yield out of season, even if still plenty. At any rate, with the thermometer at 49 degrees in the warmest part of the day it is not strange that bees keep by their own fireside.

BEE-KEEPING IN DIXIE~

Conducted by J. J. WILDER, Cordele, Ga.

Getting Ready for Next Season

Long before the last case of honey was packed, lumber was bought and laid down out of which we were to make our next season's supplies and our regular machine man and helper started cutting and working it up. Every man who has our bees in charge made known his needs in August, and a bill of same was sent in. By the time the first man takes off and packs his last case of honey and puts away his last colony of bees for winter, his complete needs in the way of supplies will be in his shop ready for him, and he will go right to work setting them up. Very early in the season next year he will be ready to haul out and distribute them where needed. In this particular, all progressive beekeepers should fall in line and be ready to go into apiary work next spring.

In my case there was a general understanding personally between each man in charge and myself as to what would be best to do. There is nothing like a thorough business understanding and good congenial agreements between man and man working together.

Apiary Tidiness

I have seen a few apiaries in my travels that were kept almost over tidy. But the average apiary in Dixie in this particular is far lacking in what it should and deserves to be. Some few apiarists have the high quality of tidiness about their work and somehow leave things looking neat wherever their hands may touch. We greatly admire this quality in one of our men, and we often wish more possessed it. It does help the looks of an apiary so much when it is kept clean, with everything in proper place, etc., and it takes but a very small amount of extra work to do this.

On the other hand, it leaves a bad impression to visit an apiary that has not had justice in this particular, covers, bottoms, stands, etc., lying scattered about, a great accumulation of straw, leaves and trash, and the hives sitting around in all kinds of ways and tilted over one way or the other. It is a pity more beekeepers do not cultivate this good quality in their general apiary work. I am aware that the amount of business one has to look after has much to do with it, for some beekeepers are badly rushed at times and cannot keep things in place, but there is a time when he could do so.

Wanting Locations

During the past 60 days there have been a number of beekeepers wanting me to assist them in getting well located in Dixie. They want to move into our part of the country and join our ranks.

I want to say to these and others that I refrain from too favorable answers to such requests. I have always been as generous in this as I could well be, locating and helping these new comers the best I could. But failures have resulted and a lot of bitterness followed. So I absolutely refrain from taking up this matter personally with any one further than what is said through our Dixie Department. It is very easy to over-estimate our country

American Bee Journal

for honey production. Great success here in beekeeping can only be obtained by a young man with grit and other qualifications, one who is willing to come here and start right at the bottom and learn and work up through toil and hardships until the business is well established.

I know an apiarist who came here years ago from the North who is a genius in our line, and he has been hammering away at beekeeping, and it is only in the last few years that he has made any money in beekeeping.

Locating Apiaries

It is not a pleasant task to move apiaries to new locations at the demand of landlords. I have had lots of experience of this kind, and in these latter days I am far more particular locating apiaries than formerly. It is better to locate one in a remote place than near a farm house unless a plot or site can be obtained which the landlord cannot very well utilize, for sooner or later he will get tired of the bees and forget his agreement with the apiarist, and consider all the recompense given too small an amount.

Mr. J. R. Durden's apiary site here shown is an ideal one, a rock cliff in the edge of the field and the bluff below, giving the bees a great sweep over the country and the very best hive stands. In most sections it might not be convenient to get on a rock cliff, but similar places can be obtained where the land cannot very well be cultivated or utilized by the land owner. A worn-out spot left because it is too poor to tend, with a young growth of trees coming back on it also makes an ideal site. At any rate, it pays to look around and find such a place if possible and keep down expense and trouble.

APIARY LOCATED ON A CLIFF—J. R. Durden, Macon, Ga.

CANADIAN BEEDOM~

Conducted by J. L. Byer, Mt. Joy, Ontario.

Favorable Conditions for Next Season

Colonies throughout Ontario are going into winter quarters in fine condition. Last fall hosts of old bees were in the hives, while this year the opposite is the case. Clover is looking good everywhere, prospects are bright for the season of 1916 at present. Of course, the shadow of the horrible war is hanging over everything, and when we speak of prospects looking so good, one cannot help but wonder how the beekeepers and others in the ravaged countries are faring during these awful times. Truly, we have much to be thankful for on this favored continent, and it should bring a feeling of shame to us when we are prone to grumble over some of the small things of life not going as we would wish. This reflection is purely a personal one—if it is applicable to any other reader, swallow the morsel.

Death of J. K. Darling

We have learned of the death of Mr. J. K. Darling, of Almonte, Ont. Mr. Darling was one of our pioneers, and until a few years back a prominent figure at our conventions. He was president of the Ontario Association at one time. I always found him a kind and true friend, a gentleman in every way. I have had no particulars of his death, and was surprised and grieved to hear of his demise. The sympathies of the members of the Ontario Association and other beekeepers will go out to the bereaved family.

When to Feed for Winter

When it is necessary to feed the bees for winter, at what time should the work be done? This is a question frequently asked, and it is a hard one to answer, as so much depends upon local conditions. The late Mr. McEvoy used to tell me to do most of this work in August, and then finish early in September, advice no doubt good for his locality or he would not have followed the plan year after year. Not so many years ago, while I did not feed as early as he recommended, yet I could have done so profitably, as our late summer conditions were much the same at that time. But under existing circumstances I would not think of feeding so early. It would be a waste of time and sugar at the former period. We had no buckwheat or any other bloom after clover was over, while now we have acres of buckwheat, and even if no great surplus is stored, enough comes in to keep the bees breeding rapidly until late September.

This year I started feeding about Sept. 12. Had there only been one yard to feed a later date would have been selected, as much brood was present in many hives. October 12 was a fine warm day, and I transferred six colonies from single-walled hives into packed hives. Each colony had brood in all stages, most of them having the brood in two combs. These colonies had been fed heavily just a week ago, but that was not responsible for all of the brood present, as much of it was sealed. At this date, Oct. 14, our feeding is done, but even when this appears in print, if you have feeding to do get busy and feed a two to one syrup, and do not worry about it being late in the season.

My opinion has changed very much of late years on this question, and if it were possible to have all my needy colonies fed the same day, I would probably leave them until late October, and then feed a two to one mixture. At the north yard all the bees were fed for winter where necessary, and all packed away in the winter cases by Oct. 8. Owing to the presence of so much aster honey in the hives, we deem it a good policy to prepare early for winter so that the honey will be better ripened. Then, again, winter conditions seem to set in a little earlier than here in York county, the nights especially being much cooler in the fall.

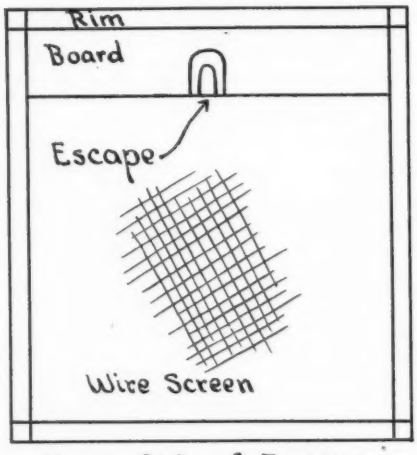
Another peculiar condition we have noticed is that although the aster flow comes on later than anything we have in York county, yet brood-rearing ceases much earlier than it does here. In other words, while a buckwheat flow here in late August will cause the bees to fill the hives well with brood, the

American Bee Journal

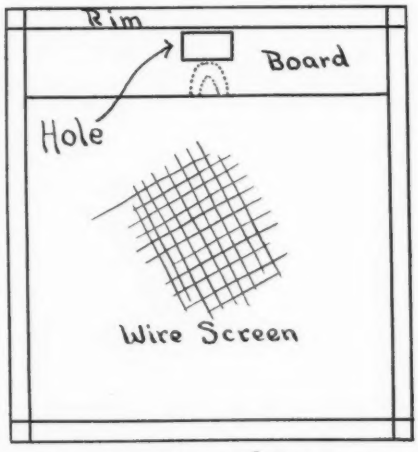
aster flow up north causes the bees to cut down brood-rearing and fill tbe brood-nest with honey. It also cuts down the field force very rapidly, and the bees up north go into winter quarters with smaller clusters than they do here. I have been wondering if this is a condition peculiar to all northern localities where there is a September flow.

That Escape Board

I have read Mr. Holtermann's article on page 307 with interest. I am glad that the escape board described has given perfect satisfaction in his hands, but from impartial reports from some others, it seems that all have not had the same success. Mr. Krouse, of Guelph, says that with him the bees are not cleared as fast from the supers as



Upper Side of Escape



Under Side of Escape

with the old style board escapes. But even if it does not work so rapidly, the fact that the honey does not cool off is a factor that more than compensates for any minor defects in other ways.

In response to my request for reports on wire-cloth escapes, Mr. O'Neil of Minnesota, kindly sent me a diagram and description of the wire-cloth escape board he has been using with success for some time. A rim with generous bee-space on both sides is nailed around the edges of the escape board, and at one end a strip three inches long runs full width of the board, and in this the Porter escape is inserted. The escape is cut off at one end, across the hole where the bees ordinarily go *down* before going through the springs. Thus, the bees walk straight into the exit instead of first going down and then turning as they have to do in the ordinary escape.

The accompanying cut will explain the construction fairly well. At the north yard we cut down about 25 of our solid board escapes, and fixed them as recommended by Mr. O'Neil. I am sorry to say that they do not work as rapidly as the old style boards, but we shall by no means abandon them, for the valuable feature, as before mentioned, is that the honey does not cool off. We used single exit escapes, and next year if all goes well we shall try the double ones and see if it improves matters any.

The Alexander Veil

There is a bit of humor to that picture on page 301, where Mr. Pleasants is "showing the queen to the visitors." The visitors, most of them ladies, are bare headed while the apiarist is inside of something which looks like a barrel, the same size at each end, which barrel I presume is named the Alexander veil. Admitting that this "contraption" is "a joy forever," is there any one who will affirm that it is "a thing of beauty?" How any one can wear with comfort such a head gear is beyond me, but "tastes differ" no doubt.

There is one thing about it that is commendable, it must surely be bee-proof, in fact, almost bomb proof. But it must be cumbersome and in the road a great deal. Anyway, I prefer the light veil on the straw hat when a veil is necessary, and this is only when extracting is in progress. A few extra stings will be taken with good humor rather than have my head done up in wire-cloth every time I look into a hive.

[We have no liking for the Alexander veil either, but we found it has many adepts among European bee-keepers—EDITOR.]

CONTRIBUTED ARTICLES

The Place of Botany in a Bee-keeper's Education

BY L. H. PAMMEL.

(Read at the Inspectors' Conference in Keokuk Iowa, Sept. 8.)

THE State Bee Inspector, Mr. Frank C. Pellett, invited me to address you on the topic as announced in your program. I can assure you that I gladly accepted his kind invitation to address you, not that I can bring you much of a message, but I am always glad to help Mr. Pellett, who has done so much for the Iowa beekeepers and those who are interested in study of the great out-of-doors. In other words, Mr. Pellett is trying to lead a lot of us to study nature. I am, moreover, under obligations to Mr. Pellett for having postponed this meeting to Sept. 7 so I did not have to hurry back from my summer vacation.

Botany, I need not tell you, should occupy an important place in a bee-keeper's education. It is, next to the subject of entomology, an important one for you.

To me, it is a fascinating subject, and we could make much more of it than we do. It goes without saying that a beekeeper should begin his botanical training at an early age. It is not merely sufficient to know a few plants that are useful to obtain honey. So I would begin the botanical work by studying the morphology of plants; namely, the structure of the root, leaf, stem and flower. In other words, before the beekeeper can become proficient in the identification of plants he must know something about the structure. Let a study of the form of plants be taken up thoroughly. Should you not have had the pleasure of a college or high school education, get some book like Leavett's Outlines, a revised edition of the old Gray's Lessons. So far as the general morphology of flowering plants is concerned, nothing better has ever been published than the admirable and simple books of Dr. Gray. There are, of course, other books, splendid in their way, it does not seem to me that they meet all of the points. Such books as the Bergen and Davis' Foundation of Botany, Atkinson's Text Book of Botany, Coulter's High School Botany were not written primarily for the taxonomist. They are splendid as general botanical works, but they do not meet the requirements to become familiar with the terms in systematic botany. The student should have at least one semester of morphology.

I would follow morphology with a course in systematic botany, "The mother of all botanies." I place systematic botany or taxonomy second because it should naturally follow structure. I think it a wise policy to have the student of plants become familiar with our common plants as soon as possible. The plant life about us is always of interest. To know the early blossoming plants, the first harbinger of spring, the hepatica, willow, wind flower, bloodroot, and many others is always a delight. It makes a person young, to greet the old friends by name. *Hepatica acutiloba or Anemone nemorosa*, etc. There is a practical side for the beekeeper. We want to encourage the growing of plants that are useful to us in our business. We want to know what plants of the *Ranunculaceae* furnish honey, or the *Compositae* or the *Leguminosae*. The beekeeper above all should be familiar

American Bee Journal

with all of the honey plants in his vicinity. I think he should be an up-to-date botanist on the flora of his region.

I feel sure that most of the beekeepers know more about plants of their vicinity than the average layman in the community. The beekeeper should know, for instance, the method of distinguishing most of the families of flowering plants in the State. Here, I may ask a few questions. How many of you know that buckbrush (*Symphoricarpos orbiculatus*) and snowberry (*S. occidentalis*) are related to the Tatarian honeysuckle (*Lonicera tatarica*), one of the splendid early blooming honey plants? How many know that the hoary vervain (*Verbena stricta*) is related to the cultivated verbena (*Verbena aubletia*)? Now the latter is not a good honey plant though the former is. How many know that the Oleaster or Russian olive (*Eleagnus angustifolia*), a splendid honey plant, is related to the buffalo berry (*Shepherdia canadensis*)? How many know that our willows (*Salix*) are related to the cottonwood and poplars? You know, of course, that the silver maple (*Acer saccharinum*) is related to the hard maple (*A. nigrum*), both species good honey plants. You recognize also a likeness to the box elder, of no use as a honey plant, although it furnishes some pollen.

Do you recognize that the prairie rose (*Rosa pratincola*), agrimony (*Agrimonia eupatoria*) and black cap raspberry (*Rubus occidentalis*) are related and belong to the rose family, Rosaceae, like the wild crab (*Pyrus ioensis*), the cultivated apple (*Pyrus malus*), the American plum (*Prunus americana*) and cherry (*Prunus cerasus*)?

The beekeeper should make a comparative study of these plants from the standpoint of relationship. There are certain points in the external resemblances of plants the beekeeper can become familiar with very readily. Take, for instance, the square stem of the mint family with the two-lipped corolla. The majority of such plants belong to the family *Labiatae*. When the flowers are borne in heads like the sunflowers and dandelions they belong to the *Composite* or sunflower family. When the flowers are borne in umbels like the carrot and parsnip they belong to parsnip family of *Umbelliferae*. When the flowers have four green sepals and four petals arranged in a cross they belong to the mustard family the *Cruciferae*, and so I might go on. There are certain external and striking characters which will enable any one to readily place a plant.

We come now to consider another side of the subject, one which certainly concerns the beekeeper. I refer to physiological botany. There are two phases of the subject—one deals with the function of the plant; how the plant elaborates its food; how the plant stores its food; how the plant conducts its food; how the plant secretes nectar, and why. Then there is the subject of ecology. This I consider of utmost importance. Ecology has to do with the environment of plants. How the growth is influenced by climate and soil. The relation of plants to pollination. Every beekeeper should make a study of relationship of insects to the pollination of plants. I think this is not only of fundamental importance to the horticulturist and agriculturist, but to the beekeeper.

Beekeepers should always keep in mind that bees of all kinds are of great value to the horticulturist. Without bees the horticulturist would get small returns in the way of fruit. Omit the bees and the apple crop would be cut very short, and for this reason I believe every fruit grower should keep bees as a side line.

Now, every farmer knows his clover seed crop will be cut short unless he has some bees. Bees are essential then for the farmer and horticulturist. There are many other most interesting questions concerning the pollination of plants.

The marvelous adaptation between insects and flowers and the structure of flowers adapted to some insects has engaged the attention of such men as Darwin, Hermann Mueller, Delpino, Trelease and Roberts. A beekeeper might well spend much time in studying these plant relations.

I would also add courses dealing with fungi and bacteria. The latter work is now made a part of a separate course. The beekeeper should have not only a general knowledge of bacteriology, but more especially the bee diseases which are playing such havoc with the beekeepers in all sections of the country. The splendid work done by Dr. Phillips is along this line. The proper relationship of bacteria to other plants should be understood, and for this reason I believe a study of the lower forms of plants is important. There are some diseases produced by fungi, and these should, of course, be studied.

May I add the best education is none too good for the beekeeper, and in conclusion allow me to thank you for the privilege of addressing you on this subject and the splendid facilities I have had here in viewing the great establishment of the Dadants. It should be an inspiration to us all.

No. 11.—The Honey-Producing Plants

BY FRANK C. PELLETT.

(*Photographs by the author.*)

THERE are a number of noxious weeds that furnish honey or pollen. These plants because of their nature should never be encouraged by the beekeeper even though their value for nectar secretion could be greatly multiplied. However, they are often so persistent that they remain in spite of constant efforts looking toward their extermination. In this number we will consider a few of the less important ones.

WILD LETTUCE.

Figure 53 will give a good idea of

FIG. 53.—WILD BLUE LETTUCE

American Bee Journal

the height to which the wild blue lettuce, *Lactuca floridana*, grows. It is common in the woodland borders, in rich soil, from Pennsylvania to Iowa and south to Florida and Texas. The plant produces hundreds of blue flowers in late summer and early fall. Although it is of no special importance as a honey plant, the bees visit it frequently and apparently get some nectar from its blossoms. In the South it is reported as blooming in May and June. The writer does not recall having seen it in bloom in Iowa earlier than August, while it blooms into September. There are a considerable number of species of wild lettuce, some

FIG. 54.—BINDWEED

of which, like the prickly lettuce, become very troublesome weeds. The writer has not observed the bees working to any extent on any except the blue fall lettuce above described.

BLACK BINDWEED.

The black bindweed or wild buckwheat, *Polygonum convolvulus* (Fig. 54), is only given here because the writer has received samples with reports that the bees were working on it. Personally the writer does not recall ever having seen a bee on this plant, nor can he find it recorded as a honey plant. However, it is a relative of the heartsease which is one of the best honey producers, and it is quite possible that in some localities it may be of some value. The readers of the American Bee Journal will confer a favor by writing to the author and telling him of their observations along this line. Some plants that yield nectar freely in some localities are of no value at all in others, and locality records are important. This plant resembles the wild morning-glory in habit of growth and in general appearance, except in flower, as will be seen by the photograph. It is a bad weed, common along highways and in grain fields from New England and Ontario, west to the Pacific coast, and south to Mexico. It was probably introduced from Europe.

RAGWEED.

Figure 55 shows the blossom and leaf of the great ragweed, *Ambrosia trifida*, often called horseweed. This is a very common roadside weed, growing to a height of 10 or 12 feet. It is common in Quebec and Ontario, west to Manitoba. In the United States it occurs from New England west to Colorado and south to the gulf. It is also found in Cuba and Mexico. It is especially common in the rich lands of the Mississippi valley from Minnesota to Texas.

The ragweed does not produce nectar, but furnishes large quantities of pollen in late summer and fall. There is also a smaller species, called Roman wormwood, *A. artemisiifolia*, or bitterweed. Bees do not work upon this.

WILD PARSNIP.

The wild parsnip, *Pastinaca sativa* (Fig. 56), introduced from Europe, has spread over a wide area from the Atlantic to the Pacific coast. It is common along railroads and highways everywhere. The small yellow flowers which are borne in clusters like an open umbrella, are attractive to a large

FIG. 55.—RAGWEED

FIG. 56.—WILD PARSNIP

variety of insects. The nectar, apparently, is never very abundant, hence it is not an important source of honey, although the plant is sometimes very plentiful.

BURDOCK.

The burdock, *Arctium lappa* (Fig. 57), is a coarse, disagreeable weed introduced from Europe and Asia. It is now common over much of the United States. The burrs fasten themselves to the clothing as well as to passing animals, and in this manner the seeds are spread. It is a biennial, common in barn lots and waste places.

The burdock is another one of the many plants on which the bees work to some extent, that never count for very much in the total production of the hive. The sources of surplus are comparatively few in number, but there are hundreds of plants from which the bees get a taste of honey or pollen. The presence or absence of these minor plants makes great difference in the value of a locality for honey production. If there are enough of them to keep the bees busy, and sustain the colony between the flows when the good yields come, the bees are in the best possible condition to take advantage of the opportunity.

Atlantic, Iowa.

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European Foulbrood

BY H. L. ADAMS.

I WAS much interested in the discussion of European foulbrood in the "Editorial Comments" for September. I wish to call attention to some experiences of mine, during the past five years, which would seem to disprove the assumption that the disease is caused by the queen or carried on the feet of bees, or that used combs

American Bee Journal

having had foulbrood in them had have disease.

Four years ago I had but three colonies alive in the spring out of 15 with which I went into winter; these three colonies when they began to rear brood smelled so foul that the odor was very noticeable in the immediate vicinity of the hives. I sent a sample to Dr. E. F. Phillips, of Washington, and word was received back that European foulbrood was the cause.

As most of the neighboring bees had already died of the disease, and I had invested a considerable amount in my bees, I decided to keep the bees and see if I could cure the disease. I talked with Mr. Seamans, at Factoryville, Pa., who, in an article in Gleanings in Bee Culture some time before, had attributed the disease to the queen, and was requeening his bees. I also read every-

FIG. 57.—BURDOCK

thing at hand on the subject and started my experiments in effecting the cure by Mr. Seaman's methods, requeening two of the three colonies with 3-banded Italians; result, no improvement. I next tried the method of making them queenless for 30 days and giving an Italian queen at the end of that time. Again the disease recurred. In July the worst colony of the three, a colony of blacks, cast a swarm, and in my absence my father hived the swarm in a hive-body full of combs I had in the cellar from a colony which had died in the spring of foulbrood. They contained dead larvæ, a very little honey, and were the oldest combs I had at that time. Imagine a more hopeless prospect! But something happened. The weather for four days was wet and stormy, and no new honey was brought in. The colony apparently used up all the honey they had brought with them and every cell that was in the hive, and, besides that, cleaned out the old combs until they fairly shone. I watched the result anxiously. No disease appeared in that hive. My faith in the diseased queen theory received a serious setback.

Acting now on the theory that diseased honey was the cause of the disease, I took frames of brood from my one healthy colony and started three nuclei which I placed on the other three stands. Over one of them I placed an excluder and the three bodies of diseased brood. This colony had a young 3-band Italian queen, and I soon had a rousing colony there, which cleaned up the combs and nearly filled them with honey during the late clover and basswood season.

The frames of brood below were carefully watched, but no disease was found during the honey flow. At the end of the basswood season there were several days during which little nectar came in, and in a week I had a well developed case of foulbrood beneath the excluder, which I reasoned must have come about from honey carried down. A few cells of foulbrood also appeared in the two other nuclei at this time, but as colonies of bees were dying all about me from the disease I thought little of that, and concluded that if I were to cure the disease I must have a more resistant strain of bees. The breeders of yellow Italian stock made the greatest claims in this respect, and I accordingly secured queens of these bees from some southern breeders.

Again I put all diseased combs above an excluder on one hive, and put my bodies of honey, which had been above the excluder before, in the honey room and tried again. No disease appeared except below the excluder after a series of stormy days, and in about three weeks I removed my combs from above the excluder and left the bees to build up and store for winter. I kept watch of the brood, however, going over it about once a week. Twice I found one or two diseased larvæ, and I placed these combs at the side of the hive body away from the other brood, first removing the contents of the diseased cell, taking a frame or two at a time from each as they could be spared and feeding a little sugar syrup when the honey flow stopped for the year.

I went into winter with nine 6-frame colonies in fair condition with no apparent signs of foulbrood. Seven of these wintered and I began to feel better. Three of the seven showed a few cells of the disease during the early part of the season, but I raised these combs above the excluders and gave them no further concern until extracting time. I have had no signs of the disease since, in that apiary, though I was not satisfied with the business end of my yellow bees, until I substituted my southern stock with southern-bred yellow bees, of which I can speak only in glowing terms. This yard which I previously had as a home yard is now an outapiary some 30 miles away.

Wishing to test out my previous experiences more fully, I purchased a diseased colony and taking it home where I could watch it, put it with four other colonies of bees, one black, one yellow and two 3-band. None of the other colonies acquired the disease up to July 1, but as the diseased colony was getting in bad shape, owing to the progress of the disease, I put the old queen together with two clean frames of brood from other hives on the old stand, and set the diseased colony to one side. Ten days later I again moved the diseased colony to one side and put a nucleus with a yellow queen on that stand. Then as soon as the young queen hatched, taking four empty combs *from the diseased colony*, I placed them *in the diseased hive body* and shook the bees (blacks) with their virgin queen upon them.

The first of these three swarms which I formed from the diseased colony, and which has had the queen from the hive when it was so badly diseased, is perfectly healthy, but I have just replaced that queen with a yellow one. It is a good colony and will go into winter in good shape. The second is also healthy, but probably will be still weak by fall, and require a little feed to carry it over. The third is now a fair 4-frame nucleus, and I will join it with some other colony later.

From these experiences I deduct that, with me, the bees apparently do not carry it on their feet, for it will be noticed that I have had conditions where all of the field bees from badly affected colonies have gone to a clean nucleus without carrying the disease to it.

It does not seem to be a disease of the queen, for I have repeatedly placed such queens on clean combs with no recurrence that could not be accounted for by diseased honey. I have nearly all the combs from my original 15 diseased colonies with only healthy brood in at this time, hence I cannot believe that it is dangerous to use these combs if properly cared for.

My method now is this: I place all diseased combs over an excluder for about 24 days. All brood will hatch and diseased cells be cleaned out in that time. Then I remove the diseased frames, extract and pile them where the bees cannot get to them until brood rearing stops in the fall. I then wet them thoroughly and place them over some colony or colonies above a honeyboard without an excluder. After three or four days when it is convenient I take off these combs and store them with the others, the little diseased honey which had been left by the excluder will be taken to the center of the brood-nest where it will be immediately used by the mature bees without injury to them, and the cells which contained it will be thoroughly cleaned so that there is no danger of their holding the germs of the disease.

As to how it is spread from hive to hive I can only surmise as others do. My theory is this: A loaded bee often enters the wrong hive. If the bee is quite young it will stay; if it is old it will load up an additional load of honey and depart for home, to return as a robber bee to meet a robber's fate. If it happens to have carried away honey from a diseased cell the trick is done, the honey is fed to several larvæ and the disease is established.

As to Dr. Miller's theory that the disease is spread in the hive by the nurse bees sucking the juices from larvæ dead of the disease and feeding

American Bee Journal

to other larvæ, I regard it as remotely possible but not probable. I have watched this disease most carefully, and I have seen nothing to bear out such a theory. If that were the case I would expect it to spread with much greater rapidity in a hive, and when more than half the brood was dying of the disease the health of the remaining brood would be unaccountable. With me a diseased colony will last for two or three years; the progress of the disease is at first very slow, and the colony becomes seriously weak only a comparatively short time before it dies or is robbed out. Then the additional fact that, due to the heat of the hive and the delicateness of the larval tissues, putrefaction sets in almost immediately after, if not before, the larva is dead, and that the shrinkage of the dead larva is only what we might expect of evaporation at that temperature, would seem to me to preclude such a possibility.

Another season I expect to experiment further with the disease, introducing to nuclei queens from the worst diseased colonies I can find, only being certain that I do not bring *any* of the American variety to my yards, and giving the diseased queen theory a final tryout, being confident from past experience as to the result.

Having studied and worked for four years with bees having this disease, I simply wish to place in your hands the results of my limited experiments.

Kingsley, Pa.

The Life of a Bee Inspector—Some of the Fun

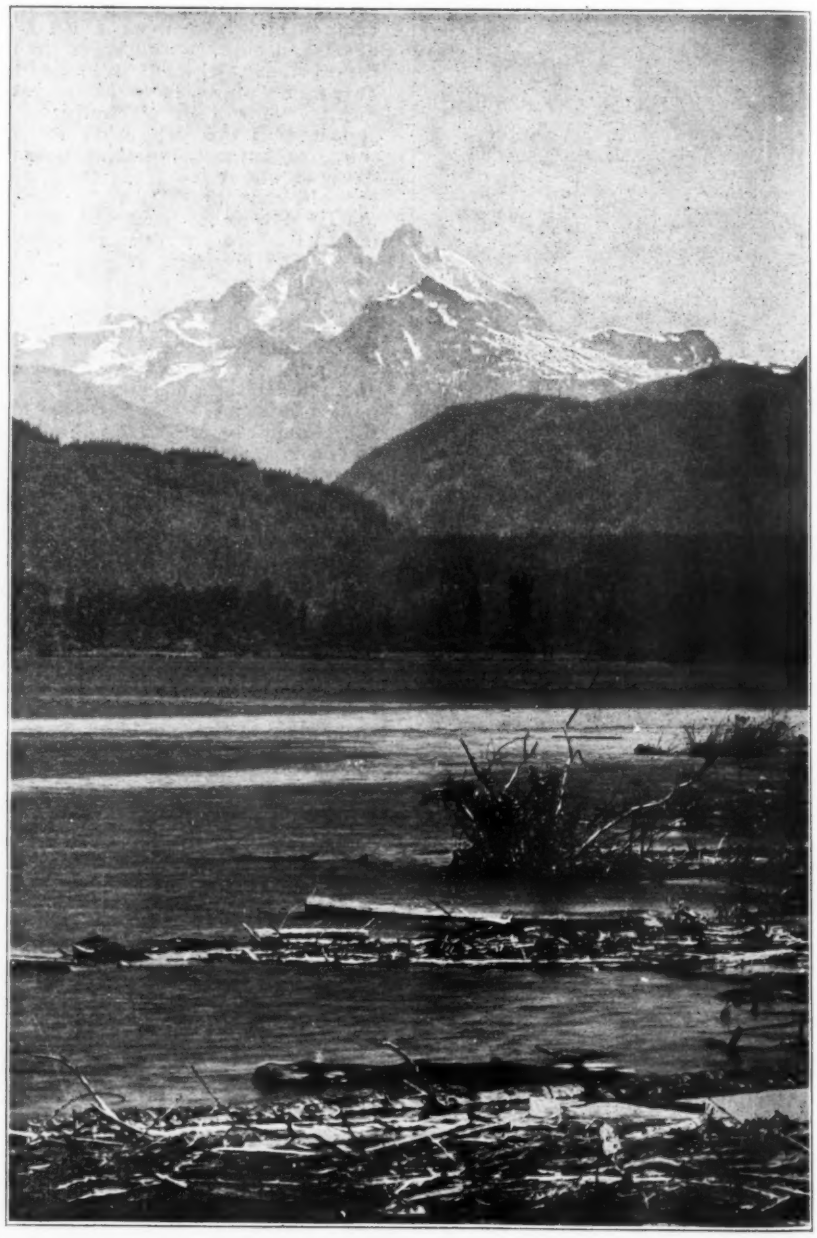
BY F. DUNDAS TODD.

MAYBE my readers think that it is a very serious thing to be a foulbrood inspector, but I want to assure them that there is a humorous side to the occupation, and that I manage to get a little fun out of it nearly every day. As in all other walks of life, the morsels are so small that they are hardly worth passing on, even if they brought a good healthy grin at the moment. On the other hand, some of them were so big that their memory lingers, and brings a smile whenever they jump into recollection. Let me tell some of these experiences in the hope that even in tamer form they may raise a smile on the face of my readers.

Working a district so thoroughly as I do, I come to learn all the regular wayfarers on the roads, so have a hailing acquaintance with the butcher, the baker, the grocery-man and such like. One day I noticed the butcher's cart driven by a well dressed stranger, and soon observed that he stopped quite a little while at every farm house along the road. My jumps were frequently over distances of 2 and 3 miles, but each time I got on the main road there he was. Having no other occupation I began to wonder what he was doing, but I suspected he was peddling something.

About 3 o'clock in the afternoon I landed at the far end of the road, right at the foot of the mountain and decided I had lost track of the stranger. When I tackled the farmer's apiary I found it located in a rather neglected orchard, alongside the fence and with grass so high in front of the two hives that we actually had to search for them. The owner informed me that the bees were so vicious that he had been forced to remove them to a considerable distance from the house, say about 200 yards. In those days I was rather ignorant of farmers and their ways of doing things, so without realizing the possible consequences I suggested that he ought to cut the grass, picturing to myself that he would use a reaping hook or clippers gently, as I would myself. I turned my attention to preparing the veils for himself, assistants and family, so did not observe his movements until I heard a loud thud. On glancing up I saw him in the act of swinging his scythe, and before I could open my mouth there was a second thud, even louder than the first. The grass was gone from the hives all right, but in an instant the air was alive with thousands of the most vicious little fiends I had met up to that moment.

I was there to work, so I sailed right in. The supers, innocent of sections, had been on the hives for years and were full of beautiful honey, so I got hold of a couple of dish-pans and replevined the lot. In the brood-chamber the combs were mostly cross-built so I had a rather slow task. Long before I got to the end of it, everybody but the farmer had bolted, and when I got to the house I found several thousand angry bees on the rampage, the honey being of course a source of attraction. Dogs and cats had bolted for shelter, while the chickens were behaving as if possessed of evil spirits. I had gotten to the end of my day's circuit, so I did not worry. I decided to postpone the yoking of my horse for awhile so as to give the bees a chance



GOLDEN EARS FROM HATZIC, B. C.
Photographed from the apiary of J. R. Morrison by F. Dundas Todd

American Bee Journal

to quiet down. I called for some cream and proceeded to put everybody in good humor by serving a dish of honey and cream. There were just seven daughters in the family, so I had a splendid time.

At the height of the hilarity the mysterious man in the butcher's cart hove in sight, then hitched up his horse to the post at the gate, which was at least 50 yards from the house. Then he swiftly advanced to the door carrying a few books in his hand. Guessing what was likely to happen I jumped to my feet to give him warning, but at that instant he suddenly stopped, whipped off his straw hat, and frantically fanned the air in all directions. Then he rushed towards the house, but at this moment his horse commenced to plunge and kick, so he reversed his engines and raced back to his worried steed. All we saw for a moment was a streak, above which something white was waving vigorously. I wish I could describe the unhitching. All we saw was a jumble of horse's head, heels, and a straw hat. How he managed to untie the rope and keep the hat going at the same time is more than I can understand. As the rope was set free the horse started, the book agent tumbled into the cart; then we had the finest imitation of a horse race my eyes have ever witnessed. He held the hat and whip in his right hand, and plied them both unceasingly and unnecessarily. At the upward lift of the whip he waved the hat around his head, on the downward stroke he hit the horse. Crouched like a jockey, he yelled to encourage his horse which to my way of thinking had incentive enough. We watched him cover a mile in awfully fast time, and then he vanished from our sight. Afterwards I learned he was peddling Pastor Russell's books on the millenium, but he departed from the district the same night. Moral: To get rid of book agents, let loose a colony of vicious bees.

My own getaway was hardly so exciting, but the bees followed me for nearly a mile.

I know that certain colonies of bees are vicious all the time, but on the other hand I have yet to learn why some are occasionally so. Sometimes I have wondered if the material used in the smoker made any difference. I pick up what I can get as I go along, and so have used cedar bark, sacking, both new and rotten, old dresses, and even old shirts, but I must confess I cannot see much difference. Again and again I thought I had found something definite, but at the very next apiary my theory would be upset. But speaking of old shirts reminds me of an experience, the recital of which always brings a chuckle of satisfaction to the most serious minded femininity.

One day while I was overhauling an apiary belonging to an old bachelor, rather noted for his dirty habits, I ran short of ammunition for the smoker, and on asking for some he handed me one of his old shirts, which in many ways was rather remarkable. The next apiary was less than a quarter of a mile away, so without taking off my bee regalia, I cut across the fields to the house. Setting the live smoker on the front porch, I rang the doorbell. When the lady of the house appeared I explained my errand. She listened quietly until I had finished, then casting her eyes to the smoker she asked, "What do you burn in that thing?" "At the present moment I am burning one of John Smith's old shirts," I meekly answered. "No wonder it smells," came the crushing comment.

I have told the above tale many times, but never to John Smith.

Once I thought I was a hoodoo. It came about in this fashion. One day I visited an apiary consisting of only one hive, but the farmer was away. His better half, a finely educated and interesting woman, was very anxious to see the inside of the hive, and of course I was equally willing that she should. She had two children, one a baby, the other a boy about 5 years old. Of course, I advised that both should be kept in the house. We had just started to work when the boy broke forth into a loud yell, and on looking around we saw him in the middle of the road cutting up many kinds of antics. The mother rushed to his aid, and I went on with my work. Soon she called to me that a bee was in the boy's nose and she could not get it out. I got both into the house, but just as soon as I began operations the boy gave one big, healthy sneeze and ejected the invader, who, by the way, had never attempted to sting.

Back we went to work, but soon the boy was yelling again. Once more he had broken bounds, and this time two bees had stung him.

Two months afterwards as I came to the gate to see how the farmer was making out, I heard a lusty yell from the same boy, next an anxious enquiry in the mother's voice, then "a wasp stung me" in a wailing tone from the child. I decided this was no place for a nervous man, that may be the mother

BEE DEMONSTRATIONS BY F. LUNDAS TODD, NORTH VANCOUVER—APIARY OF GEORGE DENNIS

American Bee Journal

might associate the beeman and stings, and so lay the blame on him. So I got out while the getting was good. Afterwards I learned she was very sorry I passed on as she wanted to have a talk with me about the bees. You just never can tell.

For pure unmitigated wickedness and cussedness the bees in the north part of Vancouver Island beat anything I ever came across. I took the trouble to trace the genealogy of the pesky creatures, and found they went back to the same apiary.

One of the fiercest collections I ever met belonged to a young lady on one of the small islands. I found her scared of them, and tried to jolly her into the possession of a little confidence, but within three minutes of starting to inspect her apiary I urged her to get into the house.

But the real fun began when I got to her brother's apiary. I was pushed for time, as I wanted to catch the noonday boat, so he drove me over to his yard in a little buggy. He hitched the horse at the gate of the 3-acre paddock, and laughed at my objections. When we got to the third hive I heard a crash, and felt sure the horse was in trouble. The beekeeper left me on the run, and did not return for nearly a quarter of an hour. Then he explained that the shaft of the rig had ripped out 15 pickets of the fence while the horse was protesting against the bee stings.

About this time the steamer arrived so I got on board. Next day I happened to be a passenger on the steamer when she came to the same pier. Leaning over the ship's side I asked him how bees did on the island. He glanced up, apparently recognized me, and at once invited me to come on shore. I regretted my inability to oblige, as I was urgently needed elsewhere. But he assured me I could get no warmer reception anywhere than I would get right there. Then he told me that after I left not a soul had dared appear in the streets of the village. The women folks had been forced to stay in the grocery store all day, while the men had been driven to the hotel bar to seek liquid antidote for the stings they might get. Even the score of dogs that generally basked all day long in the sun had been forced to take shelter in the sheds on the wharf.

I could also tell a tale of a Methodist deacon, who searching his soul for sounds to voice his woes, used language that apparently brought great joy to the heart of a French-Canadian neighbor, but would certainly lower his standing with his own church members.

It was past 6 o'clock when I was through with his apiary, but the bees followed us into the house. This was a new experience to me, so I closed the door of the room which faced the north and was shaded by trees. To my astonishment the bees came scouting around until they found the open window, then darted at us in the rear of the room. They certainly were the most pugnacious wretches I have met in my wanderings.

Victoria, B. C.

How Does European Foulbrood Spread?

BY J. E. CRANE.

FEW things have interested me more than the first page of the American Bee Journal for September and the editorial comments on it, as to the spread of European foulbrood. I have given the subject a good deal of thought and had come to the conclusion that some of the commonly accepted views, that it was largely spread by bees robbing diseased colonies, would not account for the rapid spread of this disease. Indeed, I had come to doubt if it was carried by honey at all. I have many times come across it in inspection work, but have not had a chance to study it very closely until the present season.

Last year it appeared in one of our outyards, and the past spring the yard was broken up and the weaker stock brought home and transferred to other yards, where the disease again showed itself. There has been, to me, something mysterious about the spread of it. Does it go through the air? Does the wind waft the spores or bacteria from hive to hive or from yard to yard? Do the bees carry the germs to the flowers, to be picked up by other bees from healthy colonies and carried to their hives to work destruction?

One thing I have observed in inspecting is that where I found this particular disease, I was apt to find one or more colonies in the later stages of disease, in fact, nearly gone, and then a number of colonies in the earlier stages of disease. I have sometimes likened these conditions to a hen with a brood of chickens. I have never had a single case of European foulbrood in my home yard until this season. But in every instance with one or two exceptions it has come to hives setting beside hives brought in from away that had first come down with this disease. We came to the conclusion that it came from giving combs from a diseased colony not knowing it to be diseased.

Another illustration: I found one farmer trying to increase his stock of bees. Among them I suspected one colony of being diseased, but not altogether sure. He put his bees into his cellar to winter. I wrote him during the winter, that when he took them out, to set this particular hive by itself, until I could again examine it. Instead he set his hives out in two rows facing south, and this hive in the north row, with the result that when later I examined them I found not only this hive badly diseased, but also one by its side and two directly in front of it. So many facts of this sort have come to me that I had come to believe that one most potent factor in the rapid spread of European foulbrood was the drifting of nursing bees from diseased to healthy colonies.

It is quite significant that Dr. Miller should have found disease in hive No. 93 June 22 to be followed July 1 in No. 94 and July 21 in No. 95 in regular order. That disease germs in the honey is not the main cause of the spread of this disease seems evident, as a colony may be badly diseased, but if of good strength we may remove the queen for two or three weeks and give them another, when they will remain healthy although they are using from the same honey that was used three weeks before when so much brood was dying.

There are some knotty problems connected with this whole subject. If the unsealed brood is removed during the summer and the cells polished and the disease disappears, why should not the absence of brood from the cells during four months of winter answer the same purpose? Is it because the queen carries the germs of disease within her? It looks that way. And yet when the disease first makes its appearance if we cage her for ten days or two weeks and then liberate her the disease may not reappear. Is it because she has not become inoculated with bacteria? It looks that way. But when she has been in a diseased hive for some time she becomes so saturated with bacteria, as you might say, that they enter the eggs which later cause the death of the young larvæ. It would seem so.

Again, where bees are wintered in the cellar and taken out after brood has been started, drifting bees may

HOME AND APIARY OF TOFIELD LEHMAN, OF ELGIN, IOWA

American Bee Journal

VIEW OF MT. CHEAM AND FRASER RIVER, FROM THE APIARY OF SAM SMITH, DEWDNEY, B. C.
This is a typical specimen of British Columbia. We have thousands more just as good.—(Photographed by F. Dundas Todd.)

cause disease by entering colonies that were healthy before. The transfer of combs from diseased to healthy hives is often a fruitful source or cause of the spread of this disease. It is quite rare to find a farmer beekeeper, or one who does not make a special business of it, who will recognize disease of any kind among his bees.

The rearing of queens in diseased colonies is doubtless another cause of the spread of this disease. A friend of mine who has had a large experience with European foulbrood, says it is impossible to rear healthy or disease-resisting queens in such colonies, as they will produce only queens whose progeny cannot resist this disease.

But how does this disease spread from yard to yard? Surely not by drifting, you say. But are we sure? I certainly am not. Why should not a young nursing bee with its stomach full of pollen, water, and honey, with many bacteria, as it takes its first flight, lose its way and wander as it hears the hum of many bees, to some yard where disease was before unknown, and enter a hive and be well received for the load it brings of food now digested and ready to feed the hungry larvæ? "Impossible!" you say, "they always know their way back. Their instinct or sense of direction teaches them that." Alas! their instincts are sometimes at fault. Instinct teaches the larvæ as they reach maturity to enter the pupa state with their heads to the mouth of the cells, yet I have found them with their heads towards the base of the cell, and unable to get out without assistance.

Again, we have found bees trying to rear two larvæ in one cell and queens from drone-larvæ. No, surely, their instincts are not perfect, and I can conceive of a bee wandering far from its home to some strange hive. Presumably, however, this disease is more commonly carried from yard to yard by robber bees than otherwise, whether in the honey or on their bodies, who can tell? I have sometimes thought it was neither, but by nurse bees that followed the robbers to their home and cast in their lot with them. Of one thing, however, I feel very sure, and that is if you have European foulbrood in your yard and wish to keep it from spreading you must get rid of what you have at the earliest moment, either by caging or removing the queen from such hives, or moving them at least 4 or 5 miles from home until cured or by destroying them with their combs and honey. The last is a very sure remedy.

Perhaps I should mention another method of the distribution of European foulbrood, although it may combine all that have been mentioned. I believe, more often than we think, this disease is spread through or by the agency of wild bees.

A few weeks ago I was called to examine a yard some 50 miles from home. I found it nearly gone with this disease, and the moths taking possession. Not one good colony remained. I went to all the yards in the vicinity expecting to find other cases, but not one did I find. In talking with the owner I found that he was an old bee hunter, finding and cutting trees long distances from home, bringing home his honey and sometimes the bees with him, which was undoubtedly the way the disease came to appear in his yard. Instances might be multiplied where it has seemed very certain the disease came from wild bees.

Middlebury, Vt.

Does the Queen Convey European Foulbrood?—Is Cheshire Good Authority on This Subject?

BY OREL L. HERSHISER.

THE leading editorial of the September, 1915, issue of the American Bee Journal, by Dr. C. C. Miller and C. P. Dadant, has inspired the writer to a little investigation and the offering of a few remarks on the above important subject.

That the disease of European foulbrood is spread by the nurse bees feeding the juices of dead larvæ, before it becomes putrid, to healthy larvæ, the writer believes to be quite probable, and this seems equally true whether such juices are used purposely for food for the larvæ or whether the food of the nurse bees may become contaminated during the process of removing the dead larvæ.

The stronger flavored honeys, such as that from buckwheat, seem to excite bees to robbing more than do the milder flavored sorts, such as clover. In like manner may not the peculiar sour odor of European foulbrood, before it becomes putrid, or even after-

American Bee Journal

wards, be strongly attractive to bees causing silent robbing amongst the colonies of the apiary and of neighboring apiaries over a radius of several miles? I offer this theory in explanation of the almost simultaneous appearance of the disease in so many colonies of the apiary and in neighboring apiaries. This theory is strengthened by my observations that, as a rule, the stronger colonies are the first to become infected, and the weaker ones—those with comparatively few field workers—are usually the last to take the disease. If this silent robbing theory is correct, it offers one explanation why adjacent colonies, or those near each other, are usually found to be infected rather than a uniform distribution of infected colonies throughout the apiary.

There is far more mixing of bees of an apiary, or of neighboring apiaries, by bees gaining entrance and being allowed in colonies other than their own than is generally supposed. Also it is well known that the disease flourishes best in the early spring or later when there is a dearth of honey from natural sources, which fact also strengthens the above theory; since, when nectar is plentiful the bees immediately discontinue robbing, yield more readily to treatment and abatement of the disease is plainly noticeable.

As to the infection being in the honey: In an experiment by the writer, in which an unusually strong colony, badly affected with the disease, had stored and capped a super full of clover honey before treatment, the honey was saved and used in the "fall treatment" of two colonies; that is, the colonies were placed on these combs of honey for wintering. They did not take the disease. But still I am not so sure the honey was not diseased since good Italian stock, such as were these colonies, are quite able to keep the disease cleaned out. When it comes to honey being stored in which diseased larvæ have recently died, or where the same have not been thoroughly cleaned out, as is likely to happen when a heavy honey flow is causing a rapid contraction of the brood-nest, I would suspect such honey to be contaminated. I doubt if any one who has had much experience with the disease would advise allowing the bees to rob out the combs of diseased colonies that contain only dry diseased larva and none fresh enough to be juicy.

Mr. Dadant offers as proof that "European foulbrood is usually transmitted by the queen," the statement quoted from Cheshire to the effect that upon the dissection of a queen bacilli were found in both the ovarian tube and the half developed egg. Also he offers the experiment of M. G. Dadant, where 51 colonies were treated for European foulbrood, and in three cases queens from infected colonies were introduced to weak uninfected colonies all of which contracted the disease.

As to the latter of these proofs. If the results of Mr. Dadant's experiment is to be accepted, then the theory of what has been supposed to be an effective treatment of the disease falls flat. That theory, as is well known, is to deprive the bees of all infectious food for the larvæ by the best means possible or practicable. This is accomplished by shaking or brushing, *a la* McEvoy, with two shakes, or, according to some other authorities, with but one shake, or by caging the queen a number of days, *a la* Miller, or by keeping the colony queenless 20 days, then giving a ripe queen-cell from good Italian stock, *a la* Alexander and other methods practiced by other apiarists.

Now if the disease is inherent in the queen, what is to be accomplished by these methods (except, of course, the Alexander method which contemplates a new queen)? *Nothing*. With 51 diseased colonies in an apiary it may be suggested that there could be no definite assurance that these three were not infected before the queens were introduced, as some time, perhaps several days, may elapse after infection before the same is discoverable by the unaided eye, even though they were weak and less likely to bring the infection from without than stronger colonies. May not bees from other colonies have entered the hives and brought the infection? I have noticed more than once that black colonies of bees will become diseased after the most thorough treatment, but have always attributed it to reinfection from outside sources or to the propensity of black bees to harbor the disease.

On the other hand I have treated many colonies of Italians and hybrids, and the cure remained permanent. Moreover, good Italian stock, when badly infected, will yield readily to treatment and remain cured which, it seems to me, would not be the case if the disease was inherent in the queen. It may be said that not all Italian stock are highly resistant. I have occasionally had a recurrence of the disease in colonies of what otherwise appeared to be the best of Italian stock.

In May, 1912, the United States Department of Agriculture issued circular No. 157, entitled, "The Cause of European Foulbrood," by G. F. White, M.D., Ph. D., Expert in Bacteriology. In this work it is shown that *Bacillus alvei*, when isolated from diseased brood, and pure cultures of the same were fed to colonies of healthy bees, foulbrood was not produced in any instance. Also it is shown, by a process of elimination, that *Bacillus pluton* is the organism that causes European foulbrood. Also it was proved by Dr. White, in 1907, that *Bacillus larvæ* is the cause of American foulbrood. Assuming the findings of Dr. White to be true—and I have not the least doubt of their truth—the presence of *Bacillus alvei* in the ovarian tube of the queen and in the half developed egg, as shown by Cheshire, would be no proof that the disease of European foulbrood was inherent in the queen.

Permit me to quote from a paper by Dr. E. F, Phillips, Ph. D., Washington, D. C., In Charge of Apiculture for the United States Department of Agriculture, published in the Annual Report of the Beekeepers' Association of the Province of Ontario, 1911, page 36.

"Early in 1884, Cheshire was invited by the British Beekeepers' Association, to read a paper on "foulbrood," although he had not previously interested himself on this subject. About two months after his work was instituted, there began to appear articles in the British Bee Journal, in which he claimed to have made great discoveries concerning the disease. In August of that year he took a single piece of comb to a bacteriologist, Mr. Cheyne, from which an organism was isolated and described, and to which Mr. Cheshire's name, *Bacillus alvei*, was given. Cheshire came to deny the existence of two brood diseases, although they had been previously differentiated, and attributed all infectious troubles of the brood to this organism. That he mixed the two diseases in his description seems certain, and there can be little reasonable doubt that the sample taken to Mr. Cheyne was what we now call European foulbrood.

"Following these papers it was commonly accepted among beekeepers that 'foulbrood' is caused by *Bacillus alvei*, but the name 'foulbrood' was most commonly applied by beekeepers to the disease now called American foulbrood. American beekeepers were strengthened in this erroneous view by the statements of Cowan, who, on examining a sample of dead brood in the United States, pronounced it to be the same as the 'foulbrood' of England, and stated that he found *Bacillus alvei* present. The examination made was obviously entirely inadequate, and the conclusion that *Bacillus alvei* is the cause of the trouble was entirely unwarranted. Since *Bacillus alvei* had never been shown to be the cause of any disease, we may omit discussion of those papers in which further studies of *Bacillus alvei* were made."

In view of the better facilities for research work than obtained for the use of investigators earlier in the field; the exhaustive researches of Dr. White, extending over years of time; his scientifically correct methods of investigating the causes of these diseases, as shown in the circular above mentioned, the conclusion seems inevitable that Cheshire made a mistake as to the effect of *Bacillus alvei* on the brood and queen; that his findings on this subject cannot be accepted as authority, and that the utmost faith may be placed on the conclusions of Dr. White.

Kenmore, N. Y.

Was Beet Sugar the Trouble?

BY FREDERICK GRIFFITH.

MR. J. A. HEBERLE, B. S., in the October number of the Bee Journal, presented an able discussion on this question, contending that beet sugar has been found by experience, in Germany, to be of equal value for feeding to cane sugar. In California, apiarists will not use beet sugar, claiming that it kills their bees.

In 1914, the writer gave his parents a strong colony with scant stores, with directions to feed them. Every week or so following would find a carpet of the poor dead creatures in front of the hive, many still quivering in the throes of death, on the pile, every time we looked at them. At first we thought they were dead robber bees, but soon found that the colony was fast dwindling. We thought we knew all about bees, and began to study their malady, but were entirely baffled.

Presently an old lady from California asked what we were feeding the

American Bee Journal

bees, and upon being told beet sugar, she told us that in California they had found beet sugar killed bees. Immediately we changed to cane sugar, and thenceforth those bees began to thrive, and rebuilt up to a fine, strong colony.

I am wondering if Dr. Phillips, Uncle Sam's beeman, has any information on this question?

Kansas City, Mo.

Some Public Misstatements

BY A. F. BONNEY.

Answer to the "Pathfinder."

"PLEASE give a brief discussion of honey and tell from what sources it is derived. ANS. This food product which is deposited by bees in the honey-comb is a sweet, thick liquid. It is clear and transparent, but when kept for some time it solidifies into a granular white mass. The sweet juices of flowers are collected by neuter bees and deposited in their honey-bags where they undergo certain chemical changes which convert them into honey.

"Honey produced by young bees is called 'virgin honey.' Older bees produce honey that is more or less yellow in color. The flavor of honey depends largely on the plants from which it is obtained. Clover and other plants are often cultivated near big apiaries to serve as bee food. Clover is a favorite for this purpose because honey made from its blossoms is almost pure white and the flavor is excellent. Honey is a valuable article of food and also has a medicinal value. Honey is sometimes produced artificially from glucose."—*Pathfinder.*

EDITOR OF PATHFINDER,
Washington, D. C.

Dear Sir:—I know you will pardon me when I call your attention to some misstatements in the above quotation from your issue of July 1.

"Honey produced by young bees" is not whiter than that deposited by older bees, and the term "virgin honey" is as obsolete as is pounding tin pans to make a swarm come to the ground. The color of honey depends entirely upon its origin. That from white clover, basswood, sweet clover and some other plants is "white;" that is, almost colorless, while that from heartsease is "amber" colored, and the honey from buckwheat is very dark. The flavor of honey depends entirely upon its origin, and experts in honey can form a very close idea as to the source from sample offered.

I know of no case where plants have been raised solely as a honey supply, save only sweet clover, which beekeepers have put into waste places until there is a great deal of it. In this part of the country not much surplus is secured from it, but it is a source of honey after the white clover ceases to yield.

If you will take the United States Dispensatory for it, honey has no medicinal value. Formerly it was used a great deal in making "pill mass," but in 30 years experience as a druggist, I have never had occasion to dispense it as a medicine.

"Honey is sometimes produced artificially from glucose." Pardon me, but that is awfully funny. Honey is glucose, *pure*, while the glucose you probably allude to, corn syrup, is made by treating starch with dilute sulphuric acid. This murderous chemical compound was formerly used to adulterate honey, but since the passage of the pure food laws there is but little if anything of the kind on the market.

Buck Grove, Iowa.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to DR. C. C. MILLER, MARENGO, IL.. He does NOT answer bee-keeping questions by mail.

Miscellaneous Questions

1. From one source I have it that in the early part of the season, when hives are full of bees, in adding a full-depth super, it makes no difference whether it is placed above or below. Another advocates putting it always below, especially in case of comb honey supers having already been put upon the original hive, and claims that this alone prevents swarming in about half the cases.

2. In a few of my colonies a day or two ago, I noticed three or four queen-cells open at one end, showing normal exit of queen, and, besides, as many queen-cells still closed. Do you think that there was a swarm for every open queen-cell except one?

3. In one case I caught the swarm as it was emerging, and was about to put it on the old stand, when I noticed such a state of affairs as just depicted, and then I also saw (in the parent hive) a queen light in body. She skipped on the other side of the frame and then flew off. Was this her mating flight? Thinking so, I did not change the position of the hive, as the queen, on returning, probably would have gone into the wrong hive. What do you think of this? KENTUCKY.

ANSWERS.—1. Putting an empty story under the body, with sections over brood, would hardly work satisfactorily, for the bees would be likely to do little or nothing in the sections until both stories below were filled. For extracted honey it would be a different story. Indeed, it is exactly the Demaree plan to prevent swarming, provided an excluder is put between the two stories, the queen being in the empty story below the excluder.

2. It is possible that a swarm had issued for each but one vacated cell, but it is more likely that no swarm had issued with a virgin, but that a royal battle had occurred, with only one survivor.

3. It may have been her mating flight, but more likely it was a flight from fright.

A Sulking Swarm

I had a swarm that alighted near the top of a tall walnut tree, then very strangely, for the queen's wings were not clipped, the swarm returned. This swarm had a tremendous lot of bees. On examining the hive I found lots of queen-cells, and I put all but two or three of the frames containing queen cells into another hive-body. Before I set this aside I placed it on top of the parent hive with an excluder between. In about an hour I set this aside of the parent hive and placed on the latter two supers so as to afford plenty of room. The swarm is in the cell-less hive. Now, in spite of two days of rain lots of the bees insist upon hanging outside at the entrance and on the front wall. How would you manage this situation? PENNSYLVANIA.

ANSWER.—I suppose you mean to ask how I would manage so that that swarm would go to work instead of sulking. The frames with lots of queen-cells you put in another hive, and presumably you set this on a new stand with enough bees to care for the brood. The main point is that you left with that very strong swarm all frames that had no queen-cells on them. If there were any considerable number of them, that would mean a good deal of brood, making the bees feel, if you will allow the expression, as if they had not yet swarmed. The management I would suggest would be to take away all but one of those frames of brood, possibly returning them a week or ten days later. That might suggest to them that the swarming business was all attended to, and it was up to them to go to work.

Dark Honey—Ventilation

I am mailing you a small package of dark amber honey, which our bees are gathering. We have white sweet clover and goldenrod near at hand.

1. I am very desirous to know from what source this dark rank honey is obtained and if it may with safety be used for winter feed. It is a delicious article after raising its temperature to about 180 degrees Fahr. for one-half or three-fourths hour.

2. What do you think of ventilation at the top of a hive in winter? Is it important, and if so would it not be proper to cut a 2-inch hole through a quilt and place the cloth cushions filled with cork chips on top of this? I use table oilcloth for quilts in summer and winter. Is there anything better? INDIANA.

ANSWERS.—1. I am sorry to say that I am a poor judge as to different kinds of honey. My guess would be that this is a mixture of different honeys, possibly of all the kinds you mention. You do not mention asters. Some have found aster very bad for winter; and if you do not have considerable of that kind of honey I should not feel very anxious as to the other honeys you mention for winter stores.

2. There is a decided difference of opinion as to the matter of upward ventilation in winter; some reporting success with sealed covering, others reporting disaster. In either case it is important to have warm covering overhead for outdoor wintering. You may be on the safer side not to have all sealed tight, and the plan you propose may work all right. I used oilcloth, same as you for years, but for many years past have had no covering over brood-frames except the hive cover, and this method I like better. But it must be remembered that I winter in cellar.

Probably a Fake

The enclosed clipping is from the Southern Ruralist for Aug. 15. What does the man mean? I do not understand at all. It seems to me he must be crazy. I thought the pure food law forbade the use of sugar in such a way, TENNESSEE.

ANSWER.—Among other things, the clipping contains the following:

"I will now proceed to explain my experiments with 'sugar syrup' feeding, to produce nice section or box honey, even in seasons when the natural honey and flowers fail.....Last season, when our honey flow was a total failure, I had gas run into my bee-house, made 25 special feeders to go

American Bee Journal

on top of supers, bought 2400 pounds of granulated white sugar, made syrup in my bee-house by the 25 gallons at a time, and let it cool. Gave the bees a quart morning and evening until the sugar was used up; that is, the 2400 pounds at $4.70 per hundred. War came on and sugar got too high for me to tackle, and this amount of sugar cleaned up all supers I had on the hives. Well, I had left three unfinished sections. I had 1200 pounds of section honey in 1-pound sections."

One is a little at a loss to know whether the writer of the foregoing, an Ohio beekeeper whose name it may be a kindness to withhold, is crazy, as suggested by "Tennessee," or merely ignorant. The fact that numbers came out so even, exactly one pound of honey for every two pounds of sugar, gives a hint that the whole thing might be a romantic dream. But the editor of a reputable publication should hardly give credit to such an affair by putting it in print.

Apparently the proceeding was a profitable affair at $4.70 per hundred, but ceased to be profitable at a little higher price. It is pretty clear then that the profit was not so very great at the $4.70. Certainly no amount of profit would induce an honest man with a reasonable amount of intelligence to do such a low-down thing as to sell sugar syrup for honey, even if he could escape the clutches of the law. Let us hope that Ohio authorities may dissuade this brother from this course and that the editor of the Southern Ruralist may be more discriminating hereafter as to the matter he publishes.

Unfinished Sections—Golden Bees

1. I have a lot of boxes of honey with bees this year's swarms, which I want to feed back to some of the hives. My hives are the Woodman make. After the bees are killed in the box could I take the cover off from the hive and supers and place the box on top of the supers by making it tight all around? Would the bees carry the honey down and put it in the supers, and if so could the box be left on the hive day and night, or would outside bees find it and get to robbing? Would F. Greiner's way given in the Bee Journal be the best? He speaks of a bridge passage from one to the other with a box in front or behind the hive. If I should do it that way would it be necessary to take the box away every day?

2. Please tell me what kind of bees you like best for honey gathering, 3-banded or golden Italians?

3. The bees that have done the best for me this summer are the ones that I gave a

ANOTHER VIEW OF THE O'DONNELL APIARY

M. J. O'DONNELL APIARY IN NORTHERN LATITUDES, LOCATED NEAR HARLEYBURY, ONT.
White clover, willow herb, raspberries and dandelions are the principal honey sources

American Bee Journal

golden queen to last fall. Perhaps they got crossed with some of my drones after they came here, for they don't seem to be as golden as they should be; but they are working later at night and earlier in the morning, and finish up the sections better than the others. Are they any better? Is it because they are perhaps crossed just right, or is it all a happen so?

Why do we have to pay more for a golden queen than we do for any other kind? NEW YORK.

ANSWERS.—1. I don't believe the bees will carry out your scheme at all. At least I never could get them to do so for me.

2. Like most beekeepers, I prefer the 3-banded.

3. There would be no change in the bees so long as the same queen remained; but it is quite possible that the original queen has been superseded and the new queen has met your drones. Evidently the new stock is better than your old stock, but without trying them side by side you can hardly tell whether goldens or 3-banders would do better for you. It may be mentioned, however, that there is quite a variation in the same variety of bees, and from this it happens that some goldens are better than some 3-banders, and at the same time some 3-banders are better than some goldens.

4. I don't know why, unless because of the general law of supply and demand, which makes an article cost more when it is scarce. I think, however, that generally one can be bought for as little as the other.

Lesser Beemoth

Two or three days ago when looking at a nucleus that had a laying queen, I found several worker bees with their heads sticking out and acting as if they would be out of the cells in a few minutes. Today looking at the same nucleus, I saw the same bees still alive and as yet in their cells.

I got a knife and took them out, being surprised to find their abdomens partly eaten and a white worm about three-fourths inch at the bottom of each cell. There were about a dozen bees so afflicted. Have never before seen this; the bees immediately removed worms and afflicted bees from the nucleus. The frames have been in constant use, being full of brood when placed in nucleus.

What explanation can you give for this? RHODE ISLAND.

ANSWER.—It is the work of the lesser beemoth. It seems to fasten the young bees in their cells, perhaps by a web in the bottom of the cells. The bees wiggle their heads earnestly and constantly, but without the power to get loose. Fortunately their presence is rare, and they do not appear in large numbers. I doubt if I have seen them once in five years, and then on a very small scale.

Damp Cellar

1. My cellar floor is concrete, and is always damp. I am thinking of covering it with 4 inches of dry sawdust. What do you think about it? I wintered 106 colonies in this cellar without a loss in 1914, but the covers and bottoms were very damp in the spring. I gave the bees all the ventilation possible according to the weather, and the temperature stood at about 45 degrees on top and 42 degrees below.

2. The plan I used on swarming in 1914 did not work this year. They swarmed with one frame of brood. Did you have any trouble with the sickness among your bees this year about the middle of July, and if you did what do you call it? My crop this year was a little better than last year, and averaged about 35 pounds of comb honey to the colony and about 65 pounds of extracted.

3. The bottom of my cellar was sandy. How would it do to break five or six holes in the floor and dig a foot or so deep, or take the floor out entirely? WISCONSIN.

ANSWERS.—1. I'm afraid the sawdust will not do a great deal of good. Possibly it might if you should sweep it up and dry it out as fast as it got wet. Lime might do more good.

2. Yes, I had some trouble to keep down swarming, as I do every year, only some years it is worse than others. I didn't call it anything but old-fashioned swarming fever.

3. Likely the sandy floor would be better than the concrete, the difference being in proportion to the amount of the concrete removed. But so long as your bees winter well the dampnesss cannot be such a very bad thing.

A Beginner

1. Is Michigan a good State for honey?

2. How many pounds will a colony here yield per season?

3. Is there any way of keeping a colony over winter when it has not enough honey stored?

4. What kind of bees is best adapted for this State?

5. Name me some of the best bee flowers and where could I get their seed?

6. Could I place a new queen in a queenless colony? MICHIGAN.

ANSWERS.—1. Yes, very good.

2. That varies very greatly, according to the locality, the season, and the beekeeper. The average per colony may be from little or nothing to 100 pounds or more.

3. Yes, it can be fed.

4. Italians are generally considered preferable.

5. White clover, raspberry, basswood, willow herb, etc. Seed can be had of seed dealers, but if you do much at beekeeping you will have to have quite a large radius for pasturage, so you will not think of planting, but will depend on pasturage already to hand.

6. Yes, it is a common thing to introduce a queen into a colony made queenless by design or accident.

It will pay you big to get a good book on beekeeping. A book really comes before a bee journal.

European Foulbrood

I saw in the May number of the Bee Journal the water cure for foulbrood. The Editor said in a foot-note it probably would not work with European foulbrood, as the queen would carry the disease.

1. Now the question is how will she carry the disease?

2. Will the honey of European foulbrood infect other colonies?

3. If the queen is infected will caging cure her; if so, how long must she be caged? MISSOURI.

ANSWERS.—1. I don't know, but I suppose *if* she carries the disease it must be through the eggs she lays.

2. Yes, provided the honey contains germs of the disease, of which there is always danger. Yet I doubt if there is much danger from the honey in the surplus department.

3. I don't know; but if the queen has the disease in her system I doubt the efficacy of caging.

Bitter Honey—Pine Honey

1. The grading rules of Colorado class as not permitted in shipping grades honey contaminated by honeydew. How is honeydew detected in the comb?

2. I found a good many granulated cells in my honey. The last time I went over my apiary I had taken the honey off three weeks before, so this must have been new honey. Can you suggest the cause of the granulation?

3. In this vicinity, 30 miles north of Chattanooga, all of the honey stored before May 20 this year was decidedly bitter. Some say it was peach bloom, some black gum, some dogwood. Do any of these cause bitter honey?

4. I have been inclined to think the bitter honey came from the bitterweed or yellow fennel, which was stored in the brood-chambers last September, as there were lots of it in this section last fall. Some of my colonies storing as much as 20 or 30 pounds apiece in supers. It was as bitter as quinine. I fed it to weaker colonies. Could this have been removed from the brood-chamber and carried into the super, as they wanted to make room for the brood, and mixed with other honey?

5. Do bees and bumblebees ever sting each other to death? My wife, son and I witnessed a battle royal between two honeybees and a large bumblebee. This was fought on a board in front of the hive—we had put it there to keep down the grass. We watched the struggle in breathless suspense for about ten minutes, when one of the bees crawled off from the board. The other bees of the hive paid no attention to them. In the fight which was decidedly rough and tumble, the bumblebee seemed to hold the bee in such a way that it could use its stinger on it; but we were not absolutely sure that it stung it. Soon they both became quiet and seemed to be dead. On examining the bumblebee we found a honeybee stinger was sticking in its neck. This may be a common occurrence to beemen, but was new to us. We have only been in the business three summers.

6. Do bees ever make honey from pines? My bees are bringing in quite a little honey now, Aug. 9, when usually there is nothing doing in this section except a few cowpeas that about feed the bees. It has been very dry here for three weeks, following an unusually wet spell. During most of this time the majority of the pines in this place have been covered with bees, and a fine flavored honey is being stored. TENNESSEE.

ANSWERS.—1. I'm not sure that Colorado officials have any particular rule as to how it is to be detected; but a good guess can be made by both looks and smell while in the comb, and if necessary it can be sampled by taste. It generally has a cloudy look that honey does not have, and its smell is peculiar. Even if a certain sample of honey could not be positively identified as honeydew, if it were so much like it as to make it difficult to decide, I suppose it would be ruled out. Possibly I'm off in my views, and shall be glad if Mr. Rauchfuss will straighten me out.

2. I don't know. There are certain kinds of honey that granulate in the hive very speedily, and you may have something of that kind. The presence of granules hastens granulation, and it is possible that you had sections from the previous year that had not been thoroughly cleaned out.

3. I'm rather glad to live where I have no chance for practical knowledge as to such objectionable honey, although sorry I can not answer your question. Perhaps some one who knows will tell us about it.

[*Helenium tenuifolium*, also called "bitterweed" and "sneezeweed," yields bitter honey, but it is not the same as fenne *Anthhnus cotula*, which is a chamomile and yields no honey. Description of "bitterweed" was given in our December, 1914, issue.—EDITOR.]

4. It is possible. Generally the honey in the brood-chamber is used up for brood, but if the queen were crowded for room the bees might carry honey from the brood-chamber into the super to make room for her.

5. I think it is not very uncommon for a bumblebee to attempt to enter a hive, and to be seized by the bees. I have seen such cases, and oftener I have seen the dead body of a bumblebee at or near the hive entrance, the hairs stripped from its body. I have an impression that the honeybees are never stung by the bumblebees, although the honeybees often sting the bumblebees but I may be mistaken.

6. Yes, bees store from pines, in some parts of Europe very largely.

Robbing—Moth

1. Last spring I put a hive in a tree with one brood-frame in it. The last of June a small swarm of bees came to it (about half a gallon of bees). I took a frame of brood

American Bee Journal

out of another hive and gave it to them. They built up two other brood-combs. I looked at them two weeks ago and found that the brood was not capped, and when I picked it out it was like thick clabber. On Sept. 11, I noticed that they were all excited and acting as though they were going to swarm. I smoked them and then sprayed them with water and they quieted down.

On Sept. 12, in the morning, the bees were all gone and very little honey was left. In a little while I noticed many bees going in. I opened the hive and they were robbing it. I stopped the entrance and they started to rob another hive. It was a colony twice as strong as they were. I threw grass over the entrance and sprayed them, but they kept on just the same, and at night I opened the hive and there were not more than two handfuls of bees.

2. What can I do to keep out the moths? I have closed the entrance down to about two inches, but they will get in just the same. I had a small colony of about a gallon of bees. I gave them five frames and put in a division-board, and today I opened the hive and the moths were all through them.

NEBRASKA.

ANSWERS.—1. It looks like a case of robbing, aggravated by the fact that there was perhaps a dearth of pasturage.

2. You cannot keep the moth out, no matter what kind of hive nor what kind of entrance. Any entrance that admits a bee will admit a moth. The only thing to keep the moth out is the bees themselves. Have the colonies strong enough and they'll take care of the moth. Italians, however, are much better in this respect than blacks. A weak colony of blacks will give up to the moth where a colony of Italians of the same size will keep them at bay.

Cleansing an Extractor

I have a chance to buy a honey extractor that has been used very little, and as there is a chance for foulbrood, I would like to know if I should buy it, if there is some way to disinfect it so that there would be no likelihood of carrying disease to my apiary and at the same time leave no objectionable odor that would ruin honey? Could it be thoroughly disinfected with hot water or steam? KENTUCKY.

ANSWER.—Washing thoroughly with water—or with steam—should be all the disinfection needed.

A CHICKEN EATING BEES
(Probably drones.)

Prevent Swarming—Good Bee Country

1. Would it do to catch a pound of bees from a colony in the spring and put them in a new hive with nothing but the foundation and a new queen?

2. Would it keep the other bees of the parent hive from swarming?

3. Is southern Indiana good for bee rearing? We have the smartweed, goldenrod, honey locust, blackberries, Simpson weed and clover.

4. Are wild cherry blossoms good for honey? There are a good many wild cherry trees here.

5. My brother's ambition and my own is to own a thousand or more colonies of bees, can we take care of them by ourselves? Could we make a living out of them? We are not afraid of work. INDIANA.

ANSWERS.—1. Yes, but you would have to imprison the bees for two or three days to prevent their going back to their old home.

2. It might not prevent swarming, but it would delay it.

3. It is considered good.

4. I don't know; but I suppose they are; fruit trees in general are good.

5. Too bad to throw cold water upon such ambitions, but it is only fair to say that they are seldom realized. Rightly managed, a good deal less than a thousand colonies should make a living for two. But it will hump you to take care of them without help

REPORTS AND EXPERIENCES

Chicken Caught Eating Bees

I am enclosing a picture of a chicken caught in the act of eating bees from the entrance of the hive. This may be of interest to your readers. W. P. KELLY.
Augusta, Wis., Oct. 3.

[We believe that chicken is eating *drones* and not worker bees. We have often seen

ANOTHER VIEW OF THE CHICKEN BEE-EATER

chickens do that. We have never heard of their eating worker bees.—EDITOR.]

Fastening Sheets of Foundation

I notice on page 207, in the June number of the American Bee Journal for 1915, the question asked how to fasten sheets of foundation to the top-bars of shallow frames without grooves or wedges.

I should like to suggest my way: It is simple, and there is not the inconvenience of using melted wax and rosin as suggested in the answer on page 207. I take a knife and slash in about ¼ of an inch every 3 or 4 inches along the upper edge, and at each end of the foundation or at the upper edge, and one end of the the foundation should be shorter than the frame.

I lay the sheet of foundation on a flat surface with a square edge, a board or square edge table, or the edge of a frame will do. I let the foundation project the distance of slash over board and bend down every other one. Then turn over and bend the remaining ones the opposite way. Now it is ready to fasten in frames or sections. Heat a knife by the light of a lamp, and place foundation in frames; first sear down to top-bar the spaces turned over on one side; then turn frame around and fasten down the other side. Next proceed with the ends. I sear down only about ⅛ depth of the ¼ inch turned down. Even though you should use full sheets it is not necessary to fasten to bottom-bar. While fastening comb-foundation I turn the top-bar down, then the ends until all are fastend.

I have used this method of fastening foundation with best results, even when I have had to haul my new swarms quite a distance. I am 10 years old. CHAS. B. SAUNDERS.
Merom, Ind., Oct. 11.

Good Prospects

During this season I have increased my apiary from 24 colonies to 42, and they have averaged me about 95 pounds of fine comb honey, spring count.

With an abundance of rain this fall the prospects are very good for 1916.

GLENN S. PLATNER.
Center Junction, Iowa, Sept. 27.

Poor Year

This has been one of the poorest years for bees we have ever had. We had so much rain and cold weather we had no honey until heartsease bloom, and that honey is so strong that I am feeding it back to the bees. H. F. HILLEBRANDT.
Osborne, Kans.

Exhibit at the Kansas State Fair

I am sending under separate cover a photograph of our honey and bee exhibit at the Kansas State Fair of 1915. I believe it was the best show that we ever had. We had three large exhibits.

J. A. Nininiger, with about 2000 pounds of honey with bees.

J. P. Lucas, of Topeka, with 700 pounds of honey, beekeepers' supplies and demonstration with bees.

W. I. Measer, a fine exhibit of about 800 pounds of honey, a full colony of bees with fruit of different varieties to show the effect of bees on fruit.

The honey crop was light this year.

W. I. MEASER.
Hutchinson, Kan., Sept. 28.

Good Increase

I had 100 colonies in the spring, which increased to 180. The yield in honey was 3500 pounds, 1000 pounds of extracted and 2500 pounds in comb honey.

I find the American Bee Journal of much value in my work with bees, and would not think of getting along without it.

CHAS. J. MILLER.
Long Prairie, Minn., Oct. 1.

Good Year

Take it in all this has been a very good year here in Crawford county. Bees came through the winter with some stores. The weather in early spring was ideal, and my colonies almost filled the first stories from fruit bloom, which was heavy, for we had about two weeks of fine warm weather dur-

American Bee Journal

ing that time. New swarms were good and strong and not overdone. Then the weather set in wet and bees stored almost no honey until Aug. 1, when from buckwheat, Spanish-needle and many other nectar yielding plants, the best honey flow we have had in three years began and is still on. I never saw my bees fill a super as quickly as they have this September, and with showers and warm weather it may last some weeks yet.

White clover was a failure here this year, on account of the two preceding dry summers, but I look for a good white clover crop here next year, as it is coming on everywhere. C. M. BARRICK.

Robinson, Ill., Sept. 27.

Late Flow Good

Here in northern Indiana the early part of the season was cool and wet, and little honey was gathered. The heartsease, white sweet clover and goldenrod opened late, but now we are having a good flow. Some colonies have added 5 pounds to their weight the last four or five days.

Mishawaka, Ind., Sept. 15. O. H. FORD.

Honey in Spite of Adverse Weather

With me, this has been a season of continual swarming. First swarm came out late as July 13, but since then my bees have made up for lost time, I had 40 colonies, spring count, and now have 70.

Last July we had 20 rainy days, and August so far is as bad, yet up-to-date I have more honey than at same time last year. In the early part of the season it was cold, cloudy and windy. I had second full-depth supers on 27 days without any work being done in them, when suddenly things went forward with a bound. CHAS. REYNDERS.

Ulster, Pa., Aug. 23.

Bees in Fine Condition for Winter

My bees are in fine condition for winter, even at this date I find some unhatched brood. The hives are full of young bees.

Elroy, Wis., Oct. 5. CHAS. SHELDON.

Bad Beginning but Good Ending

The first part of this season was very wet and cold, no honey coming in beyond what was consumed, until the first of July, then we had a fair flow for three weeks. August was cold and bees did nothing. We had a light fall flow in September. I extracted about 1000 pounds from 35 colonies, spring count, and have plenty of stores left for winter. Colonies are strong in bees and brood and have lots of pollen.

Bunceton, Mo., Oct. 4. J. R. MORGE.

Poor Season

My honey crop this year is a minus quantity. I don't think the bees have enough honey to winter on, and I am feeding them some sugar. GEO. E. CAPWELL.

Cottonwood Falls, Kan., Oct. 1.

Free Until 1916

Have you subscribed yet for The Youth's Companion for 1916? Now is the time to do it, if you are not already a subscriber, for you will get all the issues for the remaining weeks of 1915 free from the time your subscription with $2.00 is received.

The fifty-two issues of 1916 will be crowded with good reading for young and old. Reading that is entertaining, but not "wishy-washy." Reading that leaves you, when you lay the paper down, better informed, with keener aspirations, with a broader outlook on life. The Companion is a good paper to tie to if you have a growing family—and for general reading, as Justice Brewer once said, no other is necessary.

If you wish to know more of the brilliant list of contributors, from our ex-Presidents down, who will write for the new volume in 1916, and if you wish to know something of the new stories for 1916, let us send you free the Forecast for 1916.

Every new subscriber who sends $2.00 for 1916 will receive, in addition to this year's free issues, The Companion Home Calendar for 1916.

THE YOUTH'S COMPANION
BOSTON, MASS.

New Subscriptions Received at this Office.

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS.

PHELPS' Golden Italian Queens will please you.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 70 Cortland St., New York City.

GOLDEN all-over Queens. Untested, $1.00. Tested, $3.00. Breeders, $5.00 and $10.
Robert Ingram, Sycamore, Pa.

FOR SALE—About 35 colonies bees in 10-fr. hives in good condition.
[Mrs.] W. B. Moore, Altona, Ill.

PHELPS' Golden Italian Bees are hustlers.

QUEENS FROM THE PENN CO. See our large ad. elsewhere in this Journal.

FOR SALE—40 colonies bees in 10-frame hives; mostly Carniolans heavy with stores.
N. S. Burrier, Sellman, Md.

BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co.,
4Atf Greenville, Tex.

PLACE your order early to insure prompt service. Tested, $1.25; untested, $1.00. Italians and Goldens. John W. Pharr,
Berclair, Tex.

QUIRIN'S superior improved queens and bees are northern bred, and are hardy. Orders booked now. Over 20 years a breeder. Free circular. H. G. Quirin, Bellevue, Ohio.

I CAN supply you with Golden or three-banded Italian queens. Tested, $1.00 each; six or more, 85c each; untested, 75c each; six or more, 65c each. Bees, per pound, $1.25. Nuclei per frame, $1.25. Write for prices on large orders. Everything guaranteed.
I. N. Bankston, Buffalo, Tex.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1.00 each; Tested, $2.00: Breeders, $5.00 and $10.00.
2Atf J. B. Brockwell, Barnetts, Va.

THE SECRET OF SUCCESS is in having your colonies headed by good prolific queens. We have good Italian queens at 75c for untested and $1.00 for tested. G. W. Moon,
1904 Adams St., Little Rock, Ark.

QUEENS, improved three-band Italians bred for business, June 1 to Nov. 15. Untested Queens, 75c each; dozen, $8.00; Select, $1.00 each; dozen, $10. Tested Queens, $1.25; dozen, $12. Safe arrival and satisfaction guaranteed. H. C. Clemons, Boyd, Ky.

GOLDEN and 3-banded Italian and Carniolan queens, ready to ship after April 1st. Tested, $1.00; 3 to 6, 95c each; 6 to 12 or more, 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c. Bees, per lb., $1.50; Nuclei, per frame, $1.50. C. B. Bankston,
Buffalo, Leon Co., Tex.

QUEENS from my honey-gathering stock, 3 and 5 band Italians. Bred in separate yards. Queens the rest of the season—one, 75c; six, $4.00; 12, $7.00; 25, $13. Safe arrival and satisfaction guarannteed.
D. E. Brothers, Attalla, Ala.

PHELPS' Golden Italian Queens combine the qualities you want. They are great honey gatherers, beautiful and gentle. Mated, $1.00; six, $5.00; Tested, $3.00; Breeders, $5.00 and $10. C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

FOR SALE—250 colonies high grade Italian bees in 10-frame modern white pine hives. Equipped for extracted and comb honey. Located in southwestern Oklahoma. Fine climate and extensive and virgin alfalfa pasture. Fine opportunity. Must sell quickly because of other business changes.
A. W. F. Lee, Cordell, Okla.

SUPERB Golden and 3-banded queens at $1.00 for one; $7.50 for 12; $32 for 50; $60 per 100. Bees in pound packages in season.
Frank A. Leib, R. F. D. 7, San Jose, Calif.

HONEY AND BEESWAX

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill.

FOR SALE—Fine quality raspberry, milkweed honey in new 60-lb. cans (2 in case). Write for sample and price.
P. W. Sowinski, Bellaire, Mich.

FOR SALE—Clover, heartsease, No. 1 light comb, $3.00 per case; fancy, $3.25; 24 Danz. sections to case. Extracted, 120-lb. cases, 9c per pound. W. A. Latshaw, Carlisle, Ind.

FOR SALE—Light extracted honey, clover and basswood blend, in any style packages. Write for prices. Sample, 10 cents, which may apply on order. M. C. Silsbee,
R. F. D. 3, Cohocton, N. Y.

I HAVE 5000 lbs. of buckwheat-goldenrod blend of honey which I am offering for quick sale at 6½c per lb. Put up in two 5-gal. cans to case of 120 lb. net. Ira D. Bartlett,
East Jordan, Mich.

FOR SALE—Clover honey, 10 cts. lb. Clover and basswood, blend, 9 cts. lb. Light amber honey, 8 cts. lb. White sage honey, 8¼ cts. lb. All in cases of two 60-lb. cans. Amber honey, 7 cts. lb.; in barrels, 6 cts. lb. Sample 10 cts. Stringham, 105 Park Pl., N. Y. City.

FOR SALE—Well ripened and mild flavored extracted honey, two 60-pound cans to case, white, 7c; amber, 6c per lb. Amber put up in pails, six 10-lb. or twelve 5-lb. for $6.00. Fall comb honey, No. 1, $3.00 per case; No. 2, $2.75; No. 3, $2.50 per case of 24 section, six cases to carrier. H. G. Quirin, Bellevue, Ohio.

FOR SALE — Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-lb. cans or smaller packages. Amber fall honey is of our own extracting, and can also be furnished in barrels. Write for sample of kind desired and state quantity you can use. Dadant & Sons, Hamilton, Ill.

YOU MAKE a mistake in not subscribing for the Beekeepers' Review, Northstar, Mich., for they are buying supplies of all sorts for the subscriber at cost. One subscriber saved $30 on a single order; many have saved from ten to twenty dollars during a season. Fifteen months for a dollar, beginning with the October number. Do it today.

HONEY LABELS

YOUR PROBLEM of a low priced, yet neat and attractive Honey Label is solved. Catalog and Samples FREE. Liberty Pub. Co.
Sta. D., Box 4H, Cleveland, O.

SITUATIONS.

WANTED—A position in large apiary for 1916, or might buy a large apiary North or South, but South preferred.
Wm. H. Brown, Spring Hill, Ala.

FOR SALE

FOR SALE—A small beekeeper's outfit bees and all. Price low. Write.
Chas. A. Barta, Smithville, Tex.

American Bee Journal

WANTED to hear from the owner of good farm for sale. Send cash price and description. D. F. Bush, Minneapolis, Minn.

THE BEEKEEPERS' REVIEW, 15 months for a dollar, beginning with the October number. Foreign postage, 24 cts. additional. Address, with remittance, the Beekeepers' Review, Northstar, Mich.

FOR SALE—Why not locate your apiary in Calif. We will supply the bees, fixtures and locations in the finest honey-producing districts, and sell one or more apiaries on easy terms of payment. Write us.
Spencer Apiaries Co., Ventura, Calif.

THE BEEKEEPERS' REVIEW buys your supplies for you at greatly reduced prices from list, sells your honey for you without cost, also what surplus bees you have are readily sold by listing them in our free-to-subscriber list. If you want to buy honey, there is a list of producers who can furnish you with the different kinds direct. Write direct to the one nearest you that has the kind you may be in need of. Those are some of the advantages of subscribing for the Beekeepers' Review, Northstar, Mich.

FOR SALE—Cedar or pine dovetailed hives, also full line of supplies including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside. Wash.

FOR SALE—Friction-top pails, 5-lb. size per 100, $4.50; 10-lb. size, $6.25 per 100; 60-lb. cans, two in a case, 10 cases or more, 6cc; 25 cases, 59c; 50 cases or more, 58c per case. All f. o. b. Chicago. A. G. Woodman Co.,
Grand Rapids, Mich.

STANDARD DOVETAILED HIVES shipped direct from factory in Iowa. Five 8 frame for $6.00. Hoffman frames, $2.75 per hundred. Plain sections, $4.20 per M. Write for prices on what you need—a full line. Queens, 50c each. Write for large lots in July, August.
The Stover Apiaries, Mayhew, Miss.

UNHEARD of prices on friction top pails in reshipping cases. Here is a sample of the Review prices; 2-lb. cans, 24 in a reshipping case, at 50 cts. per case; 2½-lb. can, 24 in a reshipping case at 50 cts. per case; 5-lb. pails, 12 in a reshipping case, at 55 cts., 10 lb. pails, 6 in a reshipping case, at 45 cts. per case. Liberal rebate made on orders of 25 cases or more. Enclose a dollar for 15 months' subscription of the Beekeepers' Review, Northstar, Mich., with your first order.

FOR SALE—Relinquishment to 80-acre homestead with all improvements, and 100 stands of bees; all strong and vigorous colonies. An ideal location for beekeepers, being in one of the best alfalfa-producing sections of Montana. Sweet clover in abundance. No crop failures. Close to school and direct on mail route. Price, $1200.
William Schulze, Belfry, Carbon Co., Mont.

THE BEEKEEPERS' REVIEW is having made what is without doubt the best parcel-post package on the market. Listen: Double corrugated-paper case that needs only a string around it for mailing. Notice those prices: 100 one-gallon tin cans and cases at at only $11; 100 half gallon at only $8.00; 100 quarter gallon at only $6.00. The can is the regular screw-cap syrup can you are all familiar with. Compare these prices with others on the market, and send a dollar for 15 months' subscription to the Beekeepers' Review, Northstar, Mich.

Grading Rules of the Colorado Honey-Producers' Association, Denver, Colo., Adopted Feb. 6, 1915.

(All honey sold through the Colorado Honey-Producers' Association must be graded by these rules.)

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, comb and cappings white, or slightly off color. Combs not projecting beyond the wood, sections to be well cleaned. No section in this grade to weigh less than ½ ounces net or 13½ ounces gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ ounces."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

No. 1.—Sections to be well filled, combs firmly attached, not projecting beyond the wood and entirely capped, except the outside row next to the wood. Honey, comb and cappings from white to light amber in color. Sections to be cleaned. No section in this grade to weigh less than 11 ounces net or 12 ounces gross. The top of each section in this grade must be stamped, "Net weight not less than 11 ounces." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

No. 2.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 ounces net or 11 ounces gross. Also of such sections that weigh 11 ounces net or 12 ounces gross, or more, and have not more than 50 uncapped cells altogether, which must be filled with honey. Honey, comb and cappings from white to amber in color. Sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 ounces." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

COMB HONEY THAT IS NOT PERMITTED IN SHIPPING GRADES.

Honey packed in second hand cases.
Honey in badly stained or mildewed sections,
Honey showing signs of granulation.
Leaking, injured or patched up sections,
Sections containing honey-dew,
Sections with more than 50 uncapped cells or a less number of empty cells,
Sections weighing less than the minimum weight.
All of such honey should be disposed of in the home market.

EXTRACTED HONEY

Must be thoroughly ripened, weighing not less than 12 pounds per gallon. It must be well strained and packed in new cans, 60 pounds shall be packed in each 5 gallon can, and the top of each 5-gallon can shall be stamped or labeled, "Net weight not less than 60 pounds,"

Extracted honey is classed as white, light amber and amber, the letters "W," "L. A.," "A." should be used in designating color, and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new, substantial cases of proper size.

STRAINED HONEY

Must be well ripened, weighing not less than 12 pounds per gallon. It must be well stranied, and if packed in 5-gallon cans each can shall contain 60 pounds. The top of each 5-gallon can shall be stamped or labeled "Net weight not less than 60 pounds," Bright clean cans that previously contained honey may be used for strained honey.

HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey, weighing less than 12 pounds per gallon.
Honey contaminated by excessive use of smoke.
Honey not properly strained.
Honey contaminated by honey-dew.

Celluloid Queen-Buttons

These are very pretty things for bee-keepers or honey-sellers to wear on their coat-lapels. They often serve to introduce the subject of honey, which might frequently lead to a sale.

NOTE.—One bee-keeper writes: "I have every reason to believe that it would be a very good idea for every bee-keeper to wear one [of these buttons], as it will cause people to ask questions about the busy bee, and many a conversation thus started wind up with the sale of more or less honey; at any rate it would give the bee-keeper a superior opportunity to enlighten many a person in regard to honey and bees."

The picture shown above is a reproduction of a motto queen-button that we offer to bee-keepers. It has a pin on the underside to fasten it.

PRICES—by mail—1 for 6 cts.; 2 for 10 cts.; or 6 for 25 cts

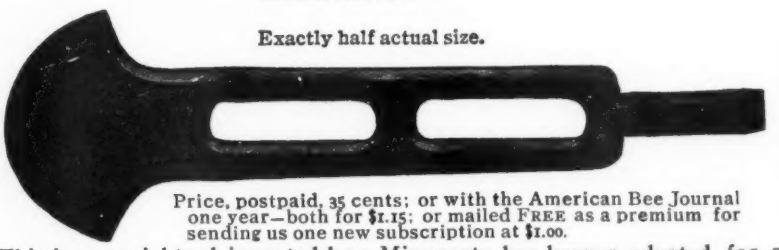
AMERICAN BEE JOURNAL,
HAMILTON, ILLINOIS.

Pearce Method of Beekeeping.—This is an illustrated booklet explaining the keeping of bees in house attics or lofts, whereby any one, either in city or country, is enabled with only a small expenditure of labor to get a lot of honey without coming in contact with the bees. The methods are all fully explained. Price, 50 cents; or with the American Bee Journal one year, both for $1.25.

The Ideal Hive-Tool Free as a Premium

NICKEL PLATED.

Exactly half actual size.



Price, postpaid, 35 cents; or with the American Bee Journal one year—both for $1.15; or mailed FREE as a premium for sending us one new subscription at $1.00.

This is a special tool invented by a Minnesota bee-keeper, adapted for prying up supers, and for general hive and other work around the apiary. Made of malleable iron, 8½ inches long. The middle part is 1 1-16 inches wide, and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screwdriver. The larger end is wedge-shaped, having a fairly sharp, semi-circular edge, making it almost perfect for prying up hive-covers, supers, etc., as it does not mar the wood. Dr. C. C. Miller, who has used this tool since 1903 says: "I think as much of the tool as ever."

American Bee Journal, Hamilton, Illinois.

American Bee Journal

Books for Beekeepers

Address the

AMERICAN BEE JOURNAL

HAMILTON, ILLINOIS

Langstroth on the Honey Bee—(Revised by Dadant.) The classic in bee culture. A 575 page cloth bound bee book brought up-to-date. It is an authority, and is used as a text book in many schools and colleges. Finely illustrated and well indexed. It is a book which should be in the hands of every beekeeper, large or small. Chapters are devoted to all important bee subjects from bee-anatomy to diseases and honey production and marketing. Price, postpaid, $1.25, or with American Bee Journal one year, both only $1.75. French edition of this book, price, postpaid, $1.50. Spanish edition, postpaid, $1.85.

Langstroth on the Hive and Honey Bee.—A reprint of Langstroth's original book printed in 1853. Of course, this older book is out of date, but it is valuable historically, and should be in every beekeeper's library in connection with the modern revised work. Postpaid, $1.00. Clubbed with the revised book, price of both, $1.85. Both books and Am. Bee Journal one year, $2.50.

Bee Primer for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

Fifty Years Among the Bees.—This is a standard book of something like 350 pages and over 100 illustrations. Its author, Dr. C. C. Miller, is a specialist beekeeper with an experience of over 50 years. He has read a majority of the literature on bees published in this country, and much of that published in Europe, and is everywhere considered as a high authority on the subject. It tells in detail how Dr. Miller keeps bees. Bound in cloth. Price, postpaid, $1.00, or with a year's subscription to the American Bee Journal, both for $1.75.

A Modern Bee Farm, by Samuel Simmins. The author is a live English beekeeper. He has kept up with the progress in this line not only in his own country, but all over the world. His views are determined, but very well taken, and his points are made with an accuracy which is convincing. Cloth bound, 470 pages. Price, postpaid, $2.00, or with the American Bee Journal, both $2.75.

Beekeeper's Guide, by A. J. Cook—This book on bees is also known as the "Manual of the Apiary." It is instructive and interesting, as well as practically scientific. It has 544 pages and 295 illustrations. Bound in cloth. Price, postpaid, $1.20; or with a year's subscription to the American Bee Journal, both for $1.80.

Scientific Queen Rearing.—This is practically the only complete book on queen rearing now in print. It is looked upon by many as the foundation of modern methods of rearing queens in a wholesale way. G. M. Doolittle, its author, has an entertaining way of writing on bee subjects which helps his readers to follow him with pleasure even if they never intend to rear queens at all. He describes just how the best queen can be reared in nature's way. Cloth bound, 124 pages, 75 cents, postpaid. There is also a leatherette-bound edition of the same book which retails at 50 cents, or with the American Bee Journal, both for $1.00.

Advanced Bee Culture.—A new edition of this book by the late W. Z. Hutchinson, of Michigan, is a practical and up-to-date bee book for the specialist beekeeper. Its 200 pages touch on subjects pertaining to modern beekeeping, and all are discussed with the authority of an expert. The book has many beautiful illustrations. It is cloth bound, with a cover design in natural colors on its cover. Price, postpaid, $1.00; or with the American Bee Journal one year, both for $1.75.

GERMAN BEE BOOKS

Amerikanische Bienenzucht.—This is a beekeepers' hand book of 138 pages in the German language, written by Hans Buschbauer. It is just what German beekeepers will want. It is fully illustrated and bound in cloth. Price, postpaid, $1.00, or with the American Bee Journal one year, both for $1.75.

Bienenzucht and Honiggewinnung is the name of another and smaller paper-bound book by J. F. Eggers. It's postpaid price is 30 cents.

A Year's Work in an Out-Apiary. This is a booklet by G. M. Doolittle, the well known honey producer of New York State. He tells how he secured an average of 114½ pounds of honey per colony in a poor season. It is fully illustrated, and tells in detail just how Mr. Doolittle has won his great success as a honey producer. Price, postpaid, 50 cents; or with the American Bee Journal one year, both for $1.25. Every beekeeper should have a copy of this booklet and study it thoroughly.

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